Enterprise Management Suite User Guide for VCX™ V7000 Components

VCX™ V7000 IP Telephony Solution
System Release 7.1

Part Number 900-0385-01 Rev AB
Published May 2007

http://www.3com.com/

3Com Corporation
350 Campus Drive
Marlborough, MA
01752-3064

Copyright © 2001–2007, 3Com Corporation. All rights reserved. No part of this documentation may be reproduced in any form or by any means or used to make any derivative work (such as translation, transformation, or adaptation) without written permission from 3Com Corporation.

3Com Corporation reserves the right to revise this documentation and to make changes in content from time to time without obligation on the part of 3Com Corporation to provide notification of such revision or change.

3Com Corporation provides this documentation without warranty, term, or condition of any kind, either implied or expressed, including, but not limited to, the implied warranties, terms, or conditions of merchantability, satisfactory quality, and fitness for a particular purpose. 3Com may make improvements or changes in the product(s) and/or the program(s) described in this documentation at any time.

If there is any software on removable media described in this documentation, it is furnished under a license agreement included with the product as a separate document, in the hardcopy documentation, or on the removable media in a directory file named LICENSE.TXT or !LICENSE.TXT. If you are unable to locate a copy, please contact 3Com and a copy will be provided to you.

UNITED STATES GOVERNMENT LEGENDS:

If you are a United States government agency, then this documentation and the software described herein are provided to you subject to the following:

United States Government Legend: All technical data and computer software is commercial in nature and developed solely at private expense. Software is delivered as Commercial Computer Software as defined in DFARS 252.227-7014 (June 1995) or as a commercial item as defined in FAR 2.101(a) and as such is provided with only such rights as are provided in 3Com's standard commercial license for the Software. Technical data is provided with limited rights only as provided in DFAR 252.227-7015 (Nov 1995) or FAR 52.227-14 (June 1987), whichever is applicable. You agree not to remove or deface any portion of any legend provided on any licensed program or documentation contained in, or delivered to you in conjunction with guide.

Unless otherwise indicated, 3Com registered trademarks are registered in the United States and may or may not be registered in other countries.

3Com and the 3Com logo are registered trademarks of 3Com Corporation. VCX is a trademark of 3Com Corporation.

Other brand and product names may be registered trademarks or trademarks of their respective holders.

CONTENTS

ABOUT THIS GUIDE

Related Documentation 13
Your Comments 14

1 3COM VCX IP TELEPHONY SERVER

Installing a License on a VCX Server 15
- Obtaining a License 15
- Copying the License File to the EMS Server 16
- Uploading a License to a VCX Server 16
- Activating a License on a VCX Server 16

Managing License Files 17
- Viewing License Details 17
- Viewing License Components 18

Viewing System Information 18
Creating Backup Configuration Files 19
- Creating a Backup File 19
- Setting the Current Configuration as Baseline 19
- Restoring Backup Configuration Files 20
- Recovering a Failed Restore 21

Starting and Stopping VCX Services 21
Golden Template Configuration 22
Verifying State of the VCX IP Telephony Server 22
Verifying VCX IP Telephony Server Software Version 22
VCX IP Telephony Server Identification Tab 23
- Identification Tab Location 23
- Verifying the Type of Office Configured 24
- Verifying the Type of Components Installed on a Server 25

Verifying the Amount of Disk Spaced Used on an IP Telephony Server 25
Configuring Date and Time Variables for the IP Telephony Server 25
- Configuring the Date of an IP Telephony Server 26
- Configuring the Time of an IP Telephony Server 26

Configuring the Timezone of an IP Telephony Server 26
Configuring Authorization Station Agents 27
Adding Authorized Station Agents 27
Deleting Authorized Station Agents 27
Enabling and Disabling the Web Provisioning Server (Tomcat) 28
Rediscovering the IP Telephony Server in EMS 28
Back-end Server Maintenance 29
Monitoring XML Accounting Server Activity on the XML Accounting Server 29
Restarting Systems and Services 29
Reserving and Unreserving the Back-end Server 30
Updating the Server State 30
Configuring Replication for the VCX Data Server 31
Setting Up Replication for a VCX Data Server 31
Dropping Replication for a VCX Data Server 31
Checking Replication Status on a VCX Data Server 32
Deleting Replication Errors on the VCX Data Server 32
Managing SSH Scripts 32
RAID Monitoring 33
UPS Monitoring 33
Setting Up UPS Master/Slaves 33
Enabling UPS Monitoring 33
Viewing UPS Monitoring Information 34
Viewing UPS Slaves 34

2 CONFIGURING THE VCX DATA SERVER

VCX Data Server Database Configuration 35
Changing the VCX Data Server Database Name 35
Changing the VCX Data Server Database Server Name 35
Changing the VCX Data Server Database User Name 36
Changing the VCX Data Server Database User Password 36
Configuring the VCX Data Server Database Keep Alive Timeout 36
Configuring the VCX Data Server Client Activity Interval 37
Configuring VCX Data Server Client Request Threads 37
Configuring the VCX Data Server Logging Level 37
Enabling VCX Data Server Packet Tracing 38
VCX Data Server Configuration Tab Descriptions 38

Tab Location 38
3 Q Protocol Configuration 38
BES Common Configuration 39
BES Common Statistics 39
Flow Control Configuration 40
Identification 40
State 40
VCX Data Server Maintenance 41
Restarting the VCX Data Server 41
Shutting Down the VCX Data Server 41
Verifying the VCX Data Server State 42

3 CONFIGURING THE XML ACCOUNTING SERVER
Configuring the Client Activity Interval 43
Configuring Client Request Threads 43
Configuring the Logging Level 44
XML CDR Configuration 44
XML CDR Control 44
Enabling Packet Tracing 45
XML Accounting Server Configuration Tab Descriptions 46
Tab Location 46
3 Q Protocol Configuration 46
BES Common Configuration 47
BES Common Statistics 47
Flow Control Configuration 48
Identification 48
State 49
Accounting Server Maintenance 49
Restarting the Accounting Server 49
Stopping the Accounting Server 49
Verifying the Accounting Server State 50
QoS Monitoring 50

4 CONFIGURING THE CALL PROCESSOR
Configuring SIP Call Processor 51
Configuring Trusted Endpoints 52
Adding Trusted Endpoints 52

Editing Trusted Endpoints 53
Deleting Trusted Endpoints 53
Verifying Call Processor Version 54
Call Processor Identification Tab 54
Configuring the Back-end Servers 55
Adding Accounting Servers 55
Editing Accounting Server IP Addresses 55
Removing Accounting Servers 56
Adding Authentication Servers 56
Editing Authentication Server IP Addresses 57
Removing Authentication Servers 57
Adding Directory Servers 58
Editing Directory Server IP Addresses 58
Removing Directory Servers 59
Adding VCX Data Servers 59
Editing VCX Data Server IP Addresses 60
Removing VCX Data Servers 60
Enabling or Disabling Accounting Server 60
Enabling or Disabling Authentication Server 61
Enabling or Disabling Directory Server 61
Enabling or Disabling VCX Data Server 61
Monitoring Call Statistics 62
Verifying State of a Call Processor 62
Call Processor Maintenance 63
Restarting the Call Processor 63
Stopping the Call Processor 63
Verifying the Call Processor State 64
QoS Monitoring 64

5 CONFIGURING THE IP MESSAGING SYSTEM

Verifying State of an IP Messaging Server 65
IP Messaging Server Identification Tab 66
Verifying IP Messaging Software Version 66
Verifying Connection to Call Builder Interface 67
Configuring Call Builder Variables 67
Configuring DTMF Payload 67
Configuring RTP 67

Configuring Dialing Domain of IP Messaging Server 68
Configuring Call Processors for IP Messaging Server 68
Configuring SIP Registration 68
Configuring the Signaling Server 69
IP Messaging Server Maintenance 69
Verifying the IP Messaging Server State 69
Gracefully Stopping the IP Messaging Server 69
Stopping the IP Messaging Server Hard 70
Gracefully Restarting the IP Messaging Server 70
Restarting the IP Messaging Server Hard 70

6 CONFIGURING THE SIP PHONE DOWNLOADER
Configuring the SIP Phone Downloader 71
Device Mapping 73
SIP Phone Downloader Maintenance 74
Restarting the Application Downloader 74
Stopping the Application Downloader 74
Verifying the Application Downloader State 74

7 CONFIGURING THE COMMON AGENT
Verifying State of the Common Agent 75
Verifying Common Agent Software Version 76
Common Agent Identification Tab 76
Enabling Back-end Server Traps 77
Configuring Trap Destinations 77
Enabling Back-end Server Traps 77
Receiving Traps 78
Common Agent Maintenance 79
Restarting the Common Agent 79
Verifying the Common Agent State 79

8 CONFIGURING THE OS ENTITY
Verifying State of the O/S 81
Verifying O/S Software Version 82
O/S Identification Tab 82
O/S Entity Maintenance 83

Gracefully Restarting the O/S Entity 83
Verifying the O/S Entity State 83

9 UPGRADING AND MAINTAINING VCX SYSTEMS AND COMPONENTS

Maintaining VCX Versions 86
Viewing Installed Versions of VCX 86
Removing an Unused Version of VCX 86
Upgrading VCX Server Software from 7.0 to 7.1 87
Upgrading a Multiple Site Configuration from 7.0 to 7.1 88
Upgrading the VCX IP Telephony Software from 7.0 to 7.1 101
Installing IP Messaging Software Patch Release 102
Installing SIP Phone Downloader and Boot File Software Patch Releases 103
Upgrading VCX Server Software from 6.0x to 7.0 105
Upgrading a Multiple Site Configuration from 6.0.x to 7.0 106
Upgrading the VCX IP Telephony Software from 6.0x to 7.0 118
Uploading Music on Hold Files 119
Upgrading the IP Messaging Software from 6.0x to 7.0 120
Upgrading the SIP Phone Downloader and Boot File Software from 6.0x to 7.0 121

10 USING QOS MONITORING

Overview 123
VCX Call Processor 124
Setting QoS Monitoring Parameters 124
Specifying Phones for QoS Monitoring 124
3Com IP Phones 125
Configuring 3Com IP Phones 125
XML Accounting Server 126
Settings QoS Collection Parameters 126
Viewing Call History 128
Viewing Phone Statistics 128
Viewing Quality Detail Records (QDRs) 128

11 MANAGING MEDIA GATEWAYS

Supported Media Gateways 129
Backing Up and Restoring Media Gateways 129
Creating a Backup File 129
Performing a Restore 130
Upgrading Software 131

INDEX

About This Guide

This chapter contains an overview of this guide, lists guide conventions, related documentation, and product compatibility, and describes how to contact Customer Service.

This guide describes how to configure and maintain the following:

- 3Com Accounting Server
- 3Com Application Downloader
- 3Com Authentication Server
- 3Com Directory Server
- 3Com SIP Call Processor
- 3Com SNMP Agent
- 3Com VCX Data Server
- IP Messaging System
- UNIX OS Entity

This guide is intended for operators and administrators of the system and assumes you have a thorough understanding of telecommunications, VoIP technology, Linux operating system, Oracle databases, network knowledge, and system administrator privileges.

Release notes are issued with some products. If the information in the release notes differs from the information in this guide, follow the instructions in the release notes.

Table 1 and Table 2 list conventions that are used throughout this guide.

Table 1 Notice Icons

Icon	Notice Type	Description
	Information note	Information that describes important features or instructions
	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
	Warning	Information that alerts you to potential personal injury

Table 2 Text Conventions

Convention	Description
`Screen displays`	This typeface represents information as it appears on the screen.
`Syntax`	The word "syntax" means that you must evaluate the syntax provided and then supply the appropriate values for the placeholders that appear in angle brackets. Example: To enable RIPIP, use the following syntax: `SETDefault !<port> -RIPIP CONTrol = Listen` In this example, you must supply a port number for <port>.
`Commands`	The word "command" means that you must enter the command exactly as shown and then press Return or Enter. Commands appear in bold. Example: To remove the IP address, enter the following command: **`SETDefault !0 -IP NETaddr = 0.0.0.0`**
The words "enter" and "type"	When you see the word "enter" in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says "type."
Words in *italics*	Italics are used to: ■ Emphasize a point. ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names, menu commands, and software button names. Examples: From the *Help* menu, select *Contents*. Click *OK*.

Related Documentation

These 3Com documents contain additional information about the products in this release that are a part of or support the 3Com Convergence Applications Suite.

The following documents are a part of the VCX IP Telephony Module:

- *VCX Installation Guide*
- *VCX Maintenance Guide*
- *VCX Administration Guide*
- *VCX Basic Telephone Quick Reference Guide*
- *VCX Business Telephone Quick Reference Guide*
- *VCX Telephone Display Quick Reference Guide*
- *VCX Manager's Telephone Quick Reference Guide*
- *VCX Basic Telephone Guide*
- *VCX Business Telephone Guide*
- *VCX Manager's Telephone Guide*
- *VCX Feature Codes for Analog Telephones Quick Reference Guide*
- *VCX Security Guide*

The following documents are a part of the IP Messaging Module:

- *IP Messaging Module Quick Reference Guide - 3Com Native Interface*
- *IP Messaging Module User Guide - 3Com Native Interface*
- *IP Messaging Module Quick Reference Guide - Traditional Interface*
- *IP Messaging Module User Guide - Traditional Interface*
- *IP Messaging Module Operations and System Administration Guide*
- *E-Mail Reader Application Quick Start Guide*

The following documents are a part of the IP Conferencing Module:

- *IP Conferencing Module Installation Guide*
- *IP Conferencing Module Administration Guide*
- *IP Conferencing Module User Guide*
- *Convergence Center Client User and Administration Guide*

The following documents provide information on products that support this release:

- Enterprise Management Suite
  - *Enterprise Management Suite Getting Started Guide, Version 2.3*
  - *Enterprise Management Suite User Guide, Version 2.3*
  - *Enterprise Management Suite 2.3 for VCX 7.1 User Guide*
- Digital Gateways
  - *V7122 and V6100 Digital User Guide, Version 4.8*
  - *V6100 Digital Fast Track Installation Guide, Version 4.8*
  - *V7122 Digital Fast Track Installation Guide, Version 4.8*
- Analog Gateways
  - *V7111 Analog Fast Track Installation Guide, Version 4.8*
  - *V7111 Analog User Guide, Version 4.8*
  - *V6000 Analog Fast Track Installation Guide, Version 4.8*
  - *V6000 Analog User Guide, Version 4.8*

Your Comments

Please send e-mail comments about this guide or any of the 3Com Voice Products documentation and Help systems to:

VOICE_Techpubs_comments@3com.com

Please include the following information with your comments:

- Document title
- Document part number (found on the front page)
- Page number
- Your name and organization (optional)

Example:

Enterprise Management Suite User Guide for VCX™ V7000 Components
Part Number 900-0385-01 Rev AB
Page 25

Please address all questions regarding the 3Com software to your authorized 3Com representative.

1 3Com VCX IP Telephony Server

This chapter describes how to install a license on a VCX IP Telephony Server, and view and configure the features that are associated with the VCX IP Telephony Server.

Installing a License on a VCX Server

In VCX 7.0 and later, you must install a license to use the VCX IP Telephony Server.

The license file must be installed after you complete the network configuration and service configuration (that is, after you have run the *vcx-config-network* and *setup* scripts).

Installing a license involves the following steps:

1. Obtain the license file.
2. Copy the license file to the EMS server.
3. Upload the license file.
4. Activate the license file.

Obtaining a License

To obtain a license file, contact your authorized 3Com representative.

When you request a license file, submit the machine ID for your VCX IP Telephony Server. This machine ID is available from the command line vcx-showmachineid or from the License Info tab in EMS.

Copying the License File to the EMS Server

To copy the license file to the EMS server:

1. Place the license file you received from 3Com in the following directory on the EMS server:

   `<EMS_INSTALL_DIR>/software_upgrades/voice/ActivationKey`

2. From the EMS client *Explorer* tree, navigate to *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *License Info.*
4. In the *Planned License File* field, click the license file from the drop-down list. The license file you placed in step 1 is listed in the drop-down menu.
5. Click *Save all*.

   The license file is copied to the EMS server. Next, upload the file to the VCX server.

Uploading a License to a VCX Server

To upload the license file to the VCX server:

1. From the *Explorer* tab, right-click *3Com VCX IP Telephony Server*.
2. From the pop-up menu, select *Licensing* and then select *Upload License File*.

   The license file is uploaded. Next, activate the license file.

Activating a License on a VCX Server

To activate a license on a VCX server:

1. From the *Explorer* tab, right-click *3Com VCX IP Telephony Server*.
2. From the pop-up menu, select *Licensing* and then select *Activate License Key*.

   The license is activated.

Managing License Files

Enterprise Management Suite allows you to view the details and components of your VCX 7.x license.

This information is useful for monitoring the status of your license.

Viewing License Details

To view details of an installed license:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *License Info.*

   For a description of each field, see Table 3.

Table 3 License Info Tab

Attribute	Description
Customer/AcctNumber	The customer account number associated with the activation key.
CustomerAddress	The customer address.
CustomerName	The customer name this activation key was issued to.
ExpiryDate	The VCX license expiry date present in the activation key.
IssuerName	The VCX license issuer name for the activation key.
LicenseStatus	The status of the license. This contains the reason code for identifying licensing-related failures.
LicenseSystemVersion Number	The system version the activation key is associated with.
MachineIdentifier	The VCX license machine identifier present in the activation key.
Planned License File	The file containing the planned license file. This file must be located in the following directory on the EMS server: *software_upgrades/voice/ActivationKey*
Remaining Grace Period	The remaining time, in hours, the license will be available for during the grace period after a license expires.
SerialNumber	The VCX license serial number present in the activation key.
UpgradeExpiryDate	The VCX license expiry date for software upgrades present in the activation key.

Viewing License Components

To view a list of license components:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *Licensed Components.*

   A list of components appears. These components vary depending on your license.

Viewing System Information

EMS allows you to view summary information for the VCX IP Telephony Server.

To view summary information:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *System Info.*

   A list of attributes appears. For a description of each attribute, see Table 4.

For complete details of each attribute, view the context-sensitive help for each attribute in EMS.

Table 4 System Info Tab

Attribute	Description
RAID Status	The status of RAID.
Site type	The VCX server site type.
System Machine Identifier	The machine identifier reported by the system. This is reported independent of the activation key.
System Type	The type of VCX IP telephony server. The Server Type is determined by the combination of running software components, which affect the features made available by the server.
UPS Monitoring Status	The UPS configuration information showing if the VCX machine is configured as a master or slave.

Creating Backup Configuration Files

EMS allows you to save the configurations for the IP Telephony Server and IP Messaging server and create backup configuration files. Use these files to restore the IP Telephony Server and IP Messaging Server to a previous set of configurations.

Backup files contain configuration and backup information for all of the installed applications, as well as server and operating system configuration information. User profiles, voice mails, and database schemas are not backed up.

In addition to creating backup configuration files and performing restores, EMS allows you to recover from a situation where an attempted restore fails.

Creating a Backup File

You can save the IP Telephony Server configuration to a backup file. After you have saved the configuration, you can set the backup file as a baseline so that you can restore it later.

To save the IP Telephony Server configuration:

1. From the *Explorer* tab, right-click the *3Com VCX IP Telephony Server*.
2. From the pop-up menu, select *Configuration* and then select *Backup*.

   The progress is shown in the Job Progress section of the EMS GUI. When the command is finished, the *Working* icon changes to a *Finished* icon.
3. Click *Close*.

   This file becomes the current, or most recently saved or restored, version. You can set the current version as the baseline version.

Setting the Current Configuration as Baseline

To set the current, or most recently saved or restored, configuration as the baseline version:

1. From the *Explorer* tab, right-click the *3Com VCX IP Telephony Server*.
2. From the pop-up menu, select *Configuration* and then select *Set baseline to current*.

   The progress is shown in the Job Progress section of the EMS GUI. When the command is finished, the *Working* icon changes to a *Finished* icon.
3. Click *Close*.

   This file becomes the baseline version.

To restore the IP Telephony Server configuration, refer to Restoring Backup Configuration Files.

Restoring Backup Configuration Files

You can restore the 3Com VCX IP Telephony Server configuration from the last backup (current), the baseline, or the planned backup file.

*All VCX services are shut down during a restore. The services are **not** restarted automatically when the restore is complete. Use EMS to restart VCX services when the restore is finished. See* Starting and Stopping VCX Services *for instructions.*

To restore the 3Com VCX IP Telephony Server configuration:

1. From the *Explorer* tab, right-click the *3Com VCX IP Telephony Server*.
2. Select the configuration file you want to restore (baseline, current, or planned).
3. From the pop-up menu, select *Configuration* and then select one of the following:
   - **a** To restore the configuration to the last saved configuration, select *Restore current*.
   - **b** To restore the configuration to the saved baseline configuration (refer to Setting the Current Configuration as Baseline), select *Restore baseline*.
   - **c** To restore the configuration to the planned configuration, first select the file, and then select *Restore planned*.

   The progress is shown in the Job Progress section of the EMS GUI. When the restore operation is finished, the *Working* icon changes to a *Finished* icon.
4. Click *Close*.
5. Restart VCX services. See Starting and Stopping VCX Services for instructions.

Recovering a Failed Restore

If a configuration restore operation fails for any reason, EMS allows you to perform a *Restore Failure Recovery*.

This recovery operation uses a backup file stored on the VCX system to restore the configuration state to exactly where it was before the failed restore operation was launched.

To perform a failure recovery:

1. From the *Explorer* tab, right-click the *3Com VCX IP Telephony Server*.
2. From the pop-up menu, select *Configuration* and then select *Restore Failure Recovery*.

   The progress is shown in the Job Progress section of the EMS GUI. When the recovery is finished, the *Working* icon changes to a *Finished* icon.
3. Click *Close*.

Starting and Stopping VCX Services

When you perform a restore, all VCX services are shut down automatically. The services are **not** restarted automatically when the restore is complete. This section describes how to restart VCX services when a restore is finished, and how to manually stop VCX services.

CAUTION: *The Stop All Services option causes all VCX services (except the SNMP agent) to shutdown. Your system will not take any calls when you select this option.*

To start or stop all VCX services:

1. Log into EMS.
2. From the *Explorer* tab, right-click *3Com VCX IP Telephony Server*.
3. From the pop-up menu, select *VCX Services* and then select *Start All Services*.

   To stop all VCX services, select *Stop All Services*.

Golden Template Configuration

Configuring Golden Templates is a feature that is not specific to just VCX components. For more information on Golden Template configuration, see the *Enterprise Management Suite User Guide*.

Verifying State of the VCX IP Telephony Server

Use the *State* tab to view basic statistics for the VCX IP Telephony Server.

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *State.*
4. For a description of each field, see Table 5.

Table 5 IP Telephony Serber State Tab

Attribute	Description	Settings
Operational State	Indicates the current operational state.	Read-only
Reserved	Indicates if the object is reserved by another user.	Read-only
Reserved by	Indicates who has reserved the object.	Read-only
Usage State	Indicates how busy the resource is. `Active` is displayed when working properly.	Read-only

Verifying VCX IP Telephony Server Software Version

To verify what the operating system version is:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *Identification*.
4. In the *Version* field, the O/S version is listed.

VCX IP Telephony Server Identification Tab

Use the *Identification* tab to view basic statistics for the operating system such as the software version.

Identification Tab Location

To view the *Identification* tab:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *Identification*.
4. For a description of each field, see Table 6.

Table 6 IP Messaging Identification Tab

Attribute	Description	Settings
Class	The internal schema className for this object.	Read-only
FQN	The fully qualified name of this object. This is the complete path from the root of all objects.	Read-only
Location	Identified the physical location of the server.	String
Serial Number	Serial Number of the server. This field is reserved for future use.	Read-only
Site Type	Identifies what type of office this server is. 1 – unknown 2 – regional 3 – branch 4 – standalone	Read-only

(continued)

Table 6 IP Messaging Identification Tab

Attribute	Description	Settings
System Type	Identifies the server type based on the components that are installed and running on this server, which affect the features made available by the server. ■ `allComponents` – both the IP Telephony and IP Messaging servers are installed ■ `callServer` – only the VCX Call Processor is installed ■ `dataServer` – only the VCX Data Server is installed ■ `ipMessagingServer` – only the IP Messaging server is installed ■ `Softswitch` – only the IP Telephony server is installed ■ `billingSupportServer` – only the billing support server is installed ■ `undetermined` – cannot determine server tye	Read-only
User Label	A label assign by the user.	String
Vendor	The vendor name of this software.	Read-only
Version	The current version of this software.	Read-only

To view the latest values, click Refresh.

Verifying the Type of Office Configured

To determine if the server is a regional or branch office:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *Identification.*
4. From the *Site Type* field, the office type is listed such as `regional` or `branch`.

Verifying the Type of Components Installed on a Server

To determine the type of components installed on a server:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *Identification.*
4. From the *System Type* field, the type of server is listed, which is used to determine what components are installed. See the *Installation and Maintenance Guide* for an overview of what components are available with each configuration listed.

Verifying the Amount of Disk Spaced Used on an IP Telephony Server

This option is useful for monitoring how much space is left on a server for log files, back-ups, and any processes that require disk space. You can even configure traps to warn you of when disk space is becoming limited so you know to purge old files and increase space availability.

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *Memory.*
4. From the *Memory Utilization (%)* field, the percentage the total amount of space used is listed. If the server has reached 100, there is no more space left on this server.

Configuring Date and Time Variables for the IP Telephony Server

This section provides information on how to configure the timezone, time, and date for an IP Telephony Server. This option can sometimes be used in place of the **`vcx-config-network --wizard`** script.

In a VCX system the daylight savings and timezone configuration should only be modified using the **`vcx-config-network -- wizard`** tool that is located on the VCX server. Even though it appears the timezone and daylight savings time can be modified using Enterprise Management Suite (EMS), all configurations are not currently supported since you cannot change the daylight savings status (enabled to disabled or vice versa) from the original configuration. Also, not as many timezone options are available in EMS as there are through the **`vcx-config-network -- wizard`** tool.

When using the **`vcx-config-network -- wizard`** tool, both the Daylight Savings and Timezone preference are configured at the same time.

Configuring the Date of an IP Telephony Server

To modify the configured date of an IP Telephony Server:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *Time.*
4. From the *Date* field, enter the new date in the **`DD:MM:YYYY`** format.
5. Click *Save All*.

Configuring the Time of an IP Telephony Server

To modify the configured time of an IP Telephony Server:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *Time.*
4. From the *Time* field, enter the new time in the **`HH:MM:SS`** format. You must use military time (24 hour format).
5. Click *Save All*.

Configuring the Timezone of an IP Telephony Server

To modify the configured timezome of an IP Telephony Server:

Using the **`vcx-config-network -- wizard`** *tool is actually preferred if possible since both the Daylight Savings and Timezone preference are configured at the same time.*

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *Time.*
4. From the *Timezone* field, double-click the field and choose a new timezone from the drop-down menu.
5. Click *Save All*.

Configuring Authorization Station Agents

For this feature to become available (activated), you must enter the IP addresses of the Authorized Management Stations when prompted during the installation and initial configuration of the VCX IP Telephony System.

If at least one IP address is entered, this feature becomes active, and only that machine can manage the server. If no IP addresses are configured at initial installation, the feature is not enabled (not activated).

The *Authorized Stations* table lists which IP addresses the common agent accepts SNMP request from. Requests originating from other sources are dropped. This is a security feature on the common agent.

Adding Authorized Station Agents

Authorized station agents can only be added if an authorized station station agent was added when the IP Telephony Server was initially configured. Up to four authorized station agents can be configured.

To add authorized station agents:

1. From the explorer tree in EMS, click on the IP Telephony Server you want to add authorized station agents to.
2. From the right-hand pane, click the *Authorized Stations* tab.
3. Click *Add*.

   The *Add row to table* window appears.
4. From the *IP* field, enter the IP address of the server you want to be allowed as an authorized station agent.
5. From the *NetMask* field, enter the subnet mask IP address of the server.
6. Click *OK*.

   The authorized agent is added to the table.

Deleting Authorized Station Agents

To delete an authorized station agents:

1. From the explorer tree in EMS, click on the IP Telephony Server you want to delete an authorized station agents from.
2. From the right-hand pane, click the *Authorized Stations* tab.
3. Click the row containing the IP address you want to delete.
4. Click *Delete*.

   The authorized agent is deleted from the table.

Enabling and Disabling the Web Provisioning Server (Tomcat)

Through EMS you can enable and disable the web provisioning server (Tomcat). When disabled, the administrator cannot access the VCX data server configurables through the web provisioning server.

To enable or disable the web provisioning server GUI:

1. From the EMS explorer tree, navigate to the *3Com VCX IP Telephony Server*.
2. Right-click and select *Web Provisioning* and then click one of the following depending on whether you need to enable or disable the web provisioning server:
   - Enable – click *Enable Web Provisioning*.
   - Disable – click *Disable Web Provisioning*.

Rediscovering the IP Telephony Server in EMS

After making configuration changes on any of the VCX components, rediscover the 3Com VCX IP Telephony Server to refresh the configuration MIB values.

To rediscover to 3Com VCX IP Telephony Server in EMS:

1. In the explorer tree, right-click the *3Com VCX IP Telephony Server*.
2. From the pop-up menu, click *Rediscover*.

The progress is shown in the *Job Progress* section of the EMS GUI. When the command has completed, the *Working* icon (it is yellow) changes to a *Finished* icon (it becomes green).

Back-end Server Maintenance

This section provides maintenance tasks that are specific to the XML accounting and VCX data servers.

Monitoring XML Accounting Server Activity on the XML Accounting Server

The *Monitor State* command opens the *Monitor State* window. Use this window to monitor the operational state, usage state, or administration state of the accounting server.

To monitor the activity of the XML accounting server:

1. In the explorer tree, right-click the 3*COM XML accounting server*.
2. From the pop-up menu, click *Monitor State*.

Refer to the Enterprise Management Suite User Guide for more information.

Rediscovering the XML Accounting Server

After making configuration changes on the accounting server, rediscover the 3Com VCX IP Telephony Server to refresh the configuration MIB values.

To rediscover to 3Com VCX IP Telephony Server:

1. In the explorer tree, right-click the *3Com VCX IP Telephony Server*.
2. From the pop-up menu, click *Rediscover*.

The progress is shown in the *Job Progress* section of the EMS GUI. When the command has completed, the *Working* icon (it is yellow) changes to a *Finished* icon (it becomes green).

Restarting Systems and Services

After performing routine maintenance on either the XML accounting and the VCX data servers must be restarted.

To restart the back-end server systems and services:

1. From the explorer tree, click the individual component.
2. Right-click and select *Maintenance*, and then click *Hard Restart*.

Reserving and Unreserving the Back-end Server

The *Operator Reserve* command reserves either the XML accounting or the VCX data servers so that no one else can perform operations on the server except the administrator. The *Operator Unreserve* command cancels the reservation.

Reserving Back-end Servers

To reserve the back-end server using EMS:

1. In the explorer tree, right-click the individual back-end server.
2. From the pop-up menu, click *Operator Reserve* to reserve the back-end server.

*If the back-end server is reserved, check the **State** tab to see who has reserved the card.*

Unreserving Back-end Servers

To unreserve either the XML accounting or the VCX data servers:

1. In the explorer tree, right-click the back-end server.
2. From the pop-up menu, click *Operator Un-reserve* to unreserve the back-end server.

Updating the Server State

Use the *State* command to update EMS with the current operational state, usage state, or administration state of the back-end server.

To update the state of either the XML accounting or the VCX data servers:

1. In the explorer tree, right-click the back-end server.
2. From the pop-up menu, select *State* and then click *Update*.

Configuring Replication for the VCX Data Server

This section provides instructions on how to setup replication, check replication, delete replication errors, and drop replication for the VCX IP Telephony Server data server.

Setting Up Replication for a VCX Data Server

This section provides instructions on how to setup replication for a VCX data server. This will only setup replication in one direction. You need to repeat these steps for each set of VCX data servers you want to replication between.

1. From the EMS client explorer tree, for the VCX data server you want to connect to another VCX data server from, click *3Com VCX IP Telephony Server*.
2. In the right-hand pane, click the *Replication Settings* tab.
3. From the *Master Def Site IP Address* field, enter the IP Address of the master definition site (usually the region 1 primary VCX data server).
4. From the *Master Site IP Address* field, enter the IP Address of the master site (usually the region 2 primary VCX data server).
5. From the *Site ID* field, enter the site ID of the Region 1 VCX data server.
6. Click *Save All*.
7. Right-click *3Com VCX IP Telephony Server*, select *Database Replication,* and then click *Setup Database Replication.*
8. Repeat step 1 through step 7 to setup replication from the other direction.

Dropping Replication for a VCX Data Server

This section provides instructions on how to drop replication for a VCX data server. This will only drop replication in one direction. You need to repeat these steps for each set of VCX data servers you want to drop replication between.

1. From the EMS client explorer tree, for the VCX data server you want to drop replication from, click *3Com VCX IP Telephony Server*.
2. Right-click *3Com VCX IP Telephony Server*, select *Database Replication,* and then click *Drop Database Replication*.

   Repeat step 1 through step 2 for any other direction you need to drop replication for.

Checking Replication Status on a VCX Data Server

This feature is useful if you want to verify that replication is set-up correctly or if you want to determine if replication has finished setup when the *setupReplication* command is issued.

1. From the EMS client explorer tree, for the VCX data server you want to drop replication from, click *3Com VCX IP Telephony Server*.
2. Right-click *3Com VCX IP Telephony Server*, select *Database Replication,* and then click *Check Database Replication.*

   .The *Job Progress* section of the EMS client indicates the Replication state.

Deleting Replication Errors on the VCX Data Server

This section provides details on how to use the VCX replication error deletion script. Replication errors occasionally need to be deleted, for instance, before you perform an upgrade.

1. From the EMS client explorer tree, for the VCX data server you want to drop replication from, click *3Com VCX IP Telephony Server*.
2. Right-click *3Com VCX IP Telephony Server*, select *Database Replication,* and then click *Clear Replication Errors.*

Managing SSH Scripts

EMS provides a graphical method for creating and editing SSH scripts. This provides an easy way to configure scripts to execute commands such as performing a backup, modifying users, setting trap destinations, or rebooting a device. You can preserve per device settings such as IP addresses by inserting tokens into a script to be substituted at apply-time.

See the "Telnet Scripting Configuration" chapter in the *Enterprise Management Suite User Guide* for more information and instructions.

RAID Monitoring

EMS provides a method for viewing RAID partitions and Active Drives.

To view RAID partitions:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *RAID Partitions*.

To view RAID active drives:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3. From the *Properties* tab, click *RAID Active Drives*.

UPS Monitoring

EMS allows you to remotely set up UPS master/slaves. Additionally, if UPS monitoring is enabled, EMS displays monitoring data and data on UPS slaves.

Setting Up UPS Master/Slaves

To set up UPS master/slaves:

1. Log into EMS.
2. From the *Explorer* tab, right-click *3Com VCX IP Telephony Server*.
3. From the pop-up menu, select *UPS Monitoring* and then select *Setup as Master* or *Setup as Slave*.

Enabling UPS Monitoring

To enable or disable UPS monitoring:

1. Log into EMS.
2. From the *Explorer* tab, right-click *3Com VCX IP Telephony Server*.
3. Configure the information for the slave.
   - For Master Slave configuration, complete the information as described Table 7.
   - For Slave configuration, complete the information as described in Table 8.

For complete details of each attribute, view the context-sensitive help for each attribute in EMS.

Table 7 UPS Master Setup Parameters Tab

Attribute	Description
BatteryCharge	The percentage battery charge threshold in UPS before starting a shutdown.
IPAddress1	IP address of the first UPS.
IPAddress1Community	The community string of the first UPS.
IPAddress2	IP address of the second UPS.
IPAddress2Community	The community string of the second UPS.

Table 8 UPS Slave Setup Parameters Tab

Attribute	Description
IsMultipleUPSEnabled	Determines if multiple UPSes are enabled.
UPSServerIPAddr	The VCX server acting as a UPS monitor.

4 From the pop-up menu, select *UPS Monitoring* and then select *Enable UPS Monitoring*.

To disable UPS monitoring, select *Disable UPS Monitoring*.

Viewing UPS Monitoring Information

To view UPS monitoring information:

1 Log into EMS.
2 From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3 From the *Properties* tab, click *UPS Monitoring.*

Viewing UPS Slaves

To view UPS slaves:

1 Log into EMS.
2 From the *Explorer* tab, navigate to the *3Com VCX IP Telephony Server*.
3 From the *Properties* tab, click *UPS Slaves.*

2 Configuring the VCX Data Server

VCX Data Server Database Configuration

Use EMS to edit basic information for database identification.

Changing the VCX Data Server Database Name

Change the database name for the VCX data server using EMS:

1. From the *Explorer* tab, select the VCX data server.
2. From the *Properties* tab, select the *Database Configuration* tab.
3. In the *Name* column, double-click the associated field and enter the new database name.
4. Click *Save all*.

Changing the VCX Data Server Database Server Name

Change the database server name for the VCX data server using EMS:

1. From the *Explorer* tab, select the accounting server.
2. From the *Properties* tab, select the *Database Configuration* tab.
3. In the *ServerName* column, double-click the associated field and enter the new database server name.

   For example, cwbes.
4. Click *Save all*.

Changing the VCX Data Server Database User Name

Change the database user name for the VCX data server using EMS:

1. From the *Explorer* tab, select the VCX data server.
2. From the *Properties* tab, select the *Database Configuration* tab.
3. In the *UserName* column, double-click the associated field and enter the new database user name.

   For example, sys.
4. Click *Save all*.

Changing the VCX Data Server Database User Password

Change the database user password for the VCX data server using EMS:

1. From the *Explorer* tab, select the VCX data server.
2. From the *Properties* tab, select the *Database Configuration* tab.
3. In the *UserPasswd* column, double-click the associated field and enter the new database user password.

   For example, *besgroup*.
4. Click *Save all*.

Configuring the VCX Data Server Database Keep Alive Timeout

Configure the database keep alive timeout setting for the VCX data server using EMS:

1. From the *Explorer* tab, select the VCX data server.
2. From the *Properties* tab, select the *Database Configuration* tab.
3. In the *KeepAlive* column, double-click the associated field and enter the new keep alive timeout.

   The default setting is 20000. The range is 20000 through 1000000.
4. Click *Save all*.

Configuring the VCX Data Server Client Activity Interval

Configure the client activity interval for the VCX data server using EMS:

1. From the *Explorer* tab, select the VCX data server.
2. From the *Properties* tab, select the *BES Common Configuration* tab.
3. Double-click the *ClientActivityInterval* field and enter the client activity interval in milliseconds.

   The default setting is 200000. The range is 2000 through 200000.
4. Click *Save all*.

Configuring VCX Data Server Client Request Threads

Configure client request threads for the for the VCX data server using EMS:

1. From the *Explorer* tab, select the VCX data server.
2. From the *Properties* tab, select the *BES Common Configuration* tab.
3. Double-click the *ClientReqThreads* field and enter the client request threads.

   The range is 4 through 20.
4. Click *Save all*.

Configuring the VCX Data Server Logging Level

Configure the logging level for the VCX data server using EMS:

1. From the *Explorer* tab, select the VCX data server.
2. From the *Properties* tab, select the *BES Common Configuration* tab.
3. Double-click the *LogLevel* field and enter the logging level.

   The default setting is 0. The range is 1 through 255.
4. Click *Save all*.

Enabling VCX Data Server Packet Tracing

Server packet tracing is enabled by default.

Enable packet tracing for VCX data server using EMS:

1. From the *Explorer* tab, select the VCX data server.
2. From the *Properties* tab, select the *BES Common Configuration* tab.
3. Double-click the *PacketTracing* field and select *enable* from the drop-down list.
4. Click *Save all*.

VCX Data Server Configuration Tab Descriptions

Enterprise Management Suite (EMS) contains several common configuration tabs. Most of these configurables must be set to their initial, default configuration.

Tab Location

These tabs are available for the VCX data server.

To access these tabs:

1. From the EMS GUI, navigate to the *3Com VCX IP Telephony Server* within the *Equipment* folder.
2. Click *3COM VCX Data Server*.
3. From the left-hand of the GUI, select the *Properties* tab (default).

3 Q Protocol Configuration

Use the *3 Q Protocol Configuration* tab to enable the proprietary 3Q protocol for the VCX data server.

Table 9 3 Q Protocol Configuration Tab

Attribute	Description	Settings
3QenablesStatus	Whether or not 3Q Protocol is enabled.	Read-only
ClientThread	Number of threads to receive data	Integer Range: 1- 4
ControlIPAddress	IP address of the Linux workstation receiving Control Messages.	Read-only
ControlPort	Control port number. Default = 1784.	Read-only
DataIPaddress	IP address of the Linux workstation receiving data.	Read-only
DataPort	Data port number. Default = 1789	Read-only

BES Common Configuration

Use the *BES Common Configuration* tab to enable packet tracing for the VCX data server.

Table 10 BES Common Configuration Tab

Attribute	Description	Settings
ClientActivityInterval	Keep alive interval in milliseconds. Default = 200000	Integer Range: 2000 - 200000
ClientReqThreads	Number of Application thread to process data	Integer Range: 4 - 20
InstallationType	Indicates if this back-end server is part of a regional office (rocsa) or branch office (losca).	Read-only
LogLevel	The logging level that is supported by the Back End Server. Default = 0	Integer Range: 0 - 255
PacketTracing	Enable or disable packet tracing	default = enable disable
UseTrustedClientList	Whether the use of trusted endpoint list is enabled or disabled.	default = enable disable

BES Common Statistics

Use the *BES Common Statistics* tab to view common statistics for the VCX data server.

Table 11 BES Common Statistics Tab

Attribute	Description	Settings
ServerUpTime	Server Up Time	Read-only
TotalDuplicateRequests	Total Duplicate Request	Read-only
TotalIncommingrequests	Total Incoming Request	Read-only
TotalInvalidRequests	Total Invalid Request	Read-only
TotalMalformedRequests	Total Malformed Requests	Read-only
TotalNumOfResponses	Total Number of Responses	Read-only
TotalPacketeDropped	Total Packets Dropped	Read-only
TotalPendingRequests	Total Pending Requests	Read-only
TotalUnknownTypes	Total Unknown Types	Read-only

Flow Control Configuration

Use the *Flow Control Configuration* tab to view basic statistics for the VCX data server.

Table 12 State Tab

Attribute	Description	Settings
Active Status	Indicates the current operational state.	enable disable
MaxCount	Max number of messages that can be queued or processed at any instant. A value of zero will disable Flow Control.	Integer Range: 0 - 150
MaxQueueFullTime	Max time in seconds that the queue will remain full. A value of zero will disable Flow Control.	Integer Range: 0 - 60

Identification

Use the *Identification* tab to view basic statistics for the VCX data server.

Table 13 Identification Tab

Attribute	Description	Settings
Alias	A management defined alias for the entity saved across reboots.	String
Class	The internal schema className for this object.	Read-only
FQN	The fully qualified name of this object. This is the complete path from the root of all objects.	Read-only
Last State Change	The value of sysUpTime at the time the entity entered its current operational state.	Read-only
User Label	A label assign by the user.	String
Vendor	The vendor name of this software.	Read-only
Version	The current version of this software.	Read-only

State

Use the *State* tab to view basic statistics for the VCX data server.

Table 14 State Tab

Attribute	Description	Settings
Operational State	Indicates the current operational state.	Read-only
Reserved	Indicates if the object is reserved by another user.	Read-only

(continued)

Table 14 State Tab (continued)

Attribute	Description	Settings
Reserved by	Indicates who has reserved the object.	Read-only
Software status	The current operational state of the entity. If AdminStatus is down, then OperStatus should be down. If AdminStatus is changed to up, through the entity command interface, then OperStatus should change to up if the entity is operational; it should remain in the down state if and only if there is a fault that prevents it from going to the up state; it should remain in the notPresent state if the entity has missing components. If the entity is operational, but not responding to queries, the state is notResponding.	Read-only Default = up
Usage State	Indicates how busy the resource is.	Read-only

VCX Data Server Maintenance

This section provides maintenance tasks that are specific to just the VCX data server.

Restarting the VCX Data Server

To restart the VCX data server:

1. From the EMS explorer tree, navigate to the *3Com VCX Data Server*.
2. Right-click the VCX data server and select *Maintenance* and then click *Hard Restart*.

Shutting Down the VCX Data Server

To shut down the VCX data server:

1. From the EMS explorer tree, navigate to the *3Com VCX Data Server*.
2. Right-click the VCX data server and select *Maintenance* and then click *Hard Shutdown*.

Verifying the VCX Data Server State

To verify the state of the VCX data server using EMS:

1. Login to EMS.
2. Navigate to the VCX data server.
3. The state icon light that appears next to the *3COM VCX Data Server* identifies these states:
   - green — it is running
   - yellow – transitioning to another state
   - red — it is down

3 Configuring the XML Accounting Server

Configuring the Client Activity Interval

Configure the client activity interval for the accounting server using either the server configuration file (acctconfig.xml) or Enterprise Management Suite.

To configure the client activity interval for the accounting server using EMS:

1. From the *Explorer* tab, select the accounting server.
2. From the *Properties* tab, select the *BES Common Configuration* tab.
3. Double-click the *ClientActivityInterval* field and enter the client activity interval in milliseconds.

   The default setting is 20000. The range is 2000 through 200000.
4. Click *Save all*.

Configuring Client Request Threads

To configure client request threads for the accounting server using EMS:

1. From the *Explorer* tab, select the accounting server.
2. From the *Properties* tab, select the *BES Common Configuration* tab.
3. Double-click the *ClientReqThreads* field and enter the client request threads.

   The range is 4 through 20.
4. Click *Save all*.

Configuring the Logging Level

To configure the logging level for the accounting server using EMS:

1. From the *Explorer* tab, select the accounting server.
2. From the *Properties* tab, select the *BES Common Configuration* tab.
3. Double-click the *LogLevel* field and enter the logging level.

   The default setting is 0. The range is 1 through 255.
4. Click *Save all*.

XML CDR Configuration

This section provides details on how you can set-up the accounting server for CDR collection.

XML CDR Control

Use the *XML CDR Configuration* tab to set CDR collection variables for the accounting server.

Table 15 XML CDR Configuration Tab

Attribute	Description	Settings
CdrAutoCleanLatestBad	Whether or not the CDR files are removed automatically, periodically if the file is corrupt or missing.	enable default = disable
CdrAutoCleanLatestBadPeriod	Number of 30 minute periods to wait before automatically removing finished CDR files if the latest file is missing or invalid. NOTE: Requires *cdrAutoCleanIfLatestBad* to be enabled.	1 through 65535 default = 96
CdrAutoCleanLatestStale	Whether or not the CDR files are removed automatically, periodically if the latest file is unchanged in a specified period.	enable default = disable

(continued)

Table 15 XML CDR Configuration Tab

Attribute	Description	Settings
CdrAutoCleanLatestStalePeriod	Number of 30 minute periods to wait before automatically removing finished CDR files if the latest file is not changed within a specified period. NOTE: Requires *cdrAutoCleanIfLatestStale* to be enabled.	1 through 65535 default = 96
CdrBaseName	Name of CDR files assigned.	String
CdrDelimiter	Not Used	N/A
CdrFilePath	Path to where the XML based CDR files are put relative to the server install directory root.	String
CdrFileType	Not Used	N/A
CdrNameTimeStamp	Not Used	N/A
CdrRecordsPerFile	The maximum number of CDRs per file.	1 through 65535 default = 500
CdrTimeToClose	The maximum time a CDR file stays open after it has at least one CDR record in it.	1 through 65535 default = 120

Enabling Packet Tracing

To enable packet tracing for the accounting server using EMS:

1. From the *Explorer* tab, select the accounting server.
2. From the *Properties* tab, select the *BES Common Configuration* tab.
3. Double-click the *PacketTracing* field and select *enable* from the drop-down list.
4. Click *Save all*.

XML Accounting Server Configuration Tab Descriptions

Enterprise Management Suite (EMS) contains several common configuration tabs. Most of these configurables must be set to their initial, default configuration.

Tab Location

These tabs are available for the accounting server.

To access these tabs:

1. From the EMS GUI, navigate to the *3Com VCX IP Telephony Server* within the *Equipment* folder.
2. Click on either the *XML Accounting Server* tab.
3. From the left-hand of the GUI, select the *Properties* tab (default).

3 Q Protocol Configuration

Use the *3 Q Protocol Configuration* tab to enable the proprietary 3Q protocol for the accounting server.

Table 16 3 Q Protocol Configuration Tab

Attribute	Description	Settings
3QenablesStatus	Whether or not 3Q Protocol is enabled.	Read-only default = enabled
ClientThread	Number of threads to receive data	Integer Range: 1- 4 default = 2
ControlIPAddress	IP address of the Linux workstation receiving Control Messages.	Read-only
ControlPort	Control port number.	Read-only default = 1781
DataIPaddress	IP address of the Linux workstation receiving data.	Read-only
DataPort	Data port number. DEFAULT = 1788	Read-only default = 1786

BES Common Configuration

Use the *BES Common Configuration* tab to enable packet tracing for the accounting server.

Table 17 BES Common Configuration Tab

Attribute	Description	Settings
ClientActivityInterval	Keep alive interval in milliseconds. Default = 200000	Integer Range: 2000 - 200000
ClientReqThreads	Number of Application thread to process data	Integer Range: 4 - 20 default = 4
InstallationType	Indicates if this back-end server is part of a regional office (rocsa) or branch office (losca).	Read-only
LogLevel	The logging level that is supported by the Back End Server. Default = 0	Integer Range: 0 - 255
PacketTracing	Enable or disable packet tracing	enable default = disable
UseTrustedClientList	Whether the use of trusted endpoint list is enabled or disabled.	enable default = disable

BES Common Statistics

Use the *BES Common Statistics* tab to view common statistics for the accounting server.

Table 18 BES Common Statistics Tab

Attribute	Description	Settings
ServerUpTime	Server Up Time	Read-only
TotalDuplicateRequests	Total Duplicate Request	Read-only
TotalIncommingrequests	Total Incoming Request	Read-only
TotalInvalidRequests	Total Invalid Request	Read-only
TotalMalformedRequests	Total Malformed Requests	Read-only
TotalNumOfResponses	Total Number of Responses	Read-only
TotalPacketeDropped	Total Packets Dropped	Read-only
TotalPendingRequests	Total Pending Requests	Read-only
TotalUnknownTypes	Total Unknown Types	Read-only

Flow Control Configuration

Use the *Flow Control Configuration* tab to view basic statistics for the accounting server.

Table 19 State Tab

Attribute	Description	Settings
Active Status	Indicates the current operational state.	enable disable
MaxCount	Max number of messages that can be queued or processed at any instant. A value of zero will disable Flow Control.	Integer Range: 0 - 150
MaxQueueFullTime	Max time in seconds that the queue will remain full. A value of zero will disable Flow Control.	Integer Range: 0 - 60

Identification

Use the *Identification* tab to view basic statistics for the accounting server.

Table 20 Identification Tab

Attribute	Description	Settings
Alias	A management defined alias for the entity saved across reboots.	String
Class	The internal schema className for this object.	Read-only
FQN	The fully qualified name of this object. This is the complete path from the root of all objects.	Read-only
Last State Change	The value of sysUpTime at the time the entity entered its current operational state.	Read-only
User Label	A label assign by the user.	String
Vendor	The vendor name of this software.	Read-only
Version	The current version of this software.	Read-only

State

Use the *State* tab to view basic statistics for the accounting server.

Table 21 State Tab

Attribute	Description	Settings
Operational State	Indicates the current operational state.	Read-only
Reserved	Indicates if the object is reserved by another user.	Read-only
Reserved by	Indicates who has reserved the object.	Read-only
Software status	The current operational state of the entity. If AdminStatus is down, then OperStatus should be down. If AdminStatus is changed to up, through the entity command interface, then OperStatus should change to up if the entity is operational; it should remain in the down state if and only if there is a fault that prevents it from going to the up state; it should remain in the notPresent state if the entity has missing components. If the entity is operational, but not responding to queries, the state is notResponding.	Read-only
Usage State	Indicates how busy the resource is.	Read-only

Accounting Server Maintenance

This section provides maintenance tasks that are specific to just the accounting server.

Restarting the Accounting Server

To restart the accounting server:

1. From the EMS explorer tree, navigate to the *3Com XML Accounting Server*.
2. Right-click the accounting server and select *Maintenance* and then click *Hard Restart*.

Stopping the Accounting Server

To stop the accounting server:

1. From the EMS explorer tree, navigate to the *3Com XML Accounting Server*.
2. Right-click the accounting server and select *Maintenance* and then click *Hard Shutdown*.

Verifying the Accounting Server State

To verify the state of the accounting server using EMS:

1. Login to EMS.
2. Navigate to the accounting server.
3. The status indicator light that appears next to the *3COM XML Accounting Server* identifies these states:
   - green — it is running
   - red — it is down

QoS Monitoring

The XML Accounting Server collects QoS Monitoring reports generated by the VCX Call Processor.

On the XML Accounting Server you can:

- Set QoS collection parameters, which determine when the system issues *Warning* or *Critical* severity traps based on QoS measurements
- View call history
- View phone statistics
- View Quality Detail Reports (QDRs)

See Chapter 10, Using QoS Monitoring, for more information and instructions.

4 CONFIGURING THE CALL PROCESSOR

Configuring SIP Call Processor

This section provides information on how to configure the SIP Call Processor.

To configure the SIP Call Processor using EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *Configuration*.
4. Double-click any of the fields under the *3COM Sip Call Processor* column and configure according to the descriptions within Table 22.

Table 22 EMS SIP Call Processor Descriptions

Attribute	Description	Range	Default
AnonymousCallerString	This configurable determines what value the Call Processor will expect in the from field of an incoming SIP INVITE to indicate that the caller is suppressing their caller Id. This is one of the ways in which the Call Processor determines that an incoming caller id is suppressed.	any string	anonymous
AuthDomainString	This configurable determines what value the Call Processor will send in the "domain" parameter of the authentication challenge to SIP Endpoints.	any string	3Com
AuthRealmString	This configurable determines what value the Call Processor will send in the "realm" parameter of the authentication challenge to SIP Endpoints.	any string	3Com
ChallengeAllCalls	This configurable tells the Call Processor to challenge all incoming new call INVITE requests for authentication. In installations where security is a high priority, this configurable should be set to "true".	true false	false

(continued)

Table 22 EMS SIP Call Processor Descriptions

Attribute	Description	Range	Default
RingTimeout	This configurable provides a value for default ring no answer treatment for all calls. For any given call, if the called party is not a user on the system (or is a user on the system with no ring no answer timeout value provisioned), the Call Processor will use this value to determine how long to wait for a call to connect after receiving a ringback indication. If the amount of time configured here elapses without the call being answered, the Call Processor will disconnect the calling party and cancel the call to the called party.	60 through 3600 (seconds)	300
SignallingAddress	This configurable tells the Call Processor what IP interface to listen on for SIP messaging. The Call Processor uses this address to send SIP requests and responses.	dotted IP string NOTE: maximum 15 characters	0.0.0.0 NOTE: must be configured
SignallingPort	This configurable tells the Call Processor what IP port to listen on for SIP messaging. The Call Processor will also use this port to send SIP requests and responses.	0 through 65535	5060

5 Click *Save All*.

Configuring Trusted Endpoints

This section provides information on how to add, edit, and delete trusted endpoints for a Call Processor. Trusted endpoint do not need to have a port specified. An IP address, if present in the trusted endpoint list, is trusted independently of the port. A trusted end point can be used for devices such as gateways or other servers within the network.

Adding Trusted Endpoints

To add a trusted endpoint to a Call Processor using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Trusted Endpoints*.

4 Click *Add*.

The *Add row to table* window appears.

5 From the *Index* field, specify the index of the trusted endpoint. An index is the trusted endpoint table's key and is a unique identifier of a row.

6 From the *IpAddress* field, enter an IP address that you want to make a trusted endpoint.

7 To specify a range of trusted endpoints use the *Netmask* field, otherwise, leave it blank. From the *Netmask* field, enter an IP address for a range of trusted endpoints.

8 Click *OK*.

9 The IP Address is added and is listed in the *IpAddress* column of EMS.

Editing Trusted Endpoints

To edit a trusted endpoint to a Call Processor using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Trusted Endpoints*.

4 Double-click the field (s) you want to edit under the *IpAddress* column.

5 Highlight what you want to edit.

6 Type in the new information.

7 Click in a different field to activate the *Save all* button.

8 Click *Save all*.

The new information is added and is listed in the *IpAddress* column of EMS.

Deleting Trusted Endpoints

To delete a trusted endpoint to the Call Processor using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Trusted Endpoints*.

4 From the *IpAddress* column, click the IP Address field you want to delete.

5 Click *Delete*.

The trusted endpoint is removed from the call processor.

Verifying Call Processor Version

To verify what the Call Processor version is using EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *Identification*.
4. From the *Version* field, the Call Processor version is listed.

Call Processor Identification Tab

Use the *Identification* tab to view basic statistics for the Call Processor server.

Table 23 Identification Tab

Attribute	Description	Settings
Alias	A management defined alias for the entity saved across reboots.	String
Class	The internal schema className for this object.	Read-only
FQN	The fully qualified name of this object. This is the complete path from the root of all objects.	Read-only
Last State Change	The value of sysUpTime at the time the entity entered its current operational state.	Read-only
User Label	A label assign by the user.	String
Vendor	The vendor name of this software.	Read-only
Version	The current version of this software.	Read-only

Configuring the Back-end Servers

This section provides information on how to add and delete accounting servers, authentication servers, directory servers, and VCX data servers.

In VCX 6.0, the authentication and directory servers were combined to become the VCX data server.

Adding Accounting Servers

To add an accounting server through EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *Accounting Servers*.
4. Click *Add*.

   The *Add row to table* window appears.
5. Fill in the fields according to the descriptions in Table 24.

Table 24 Accounting Server Tab Descriptions in EMS

Attribute	Description	Values
Priority	Specifies the priority of the accounting server.	Integer: 1 - 5 1 = primary) 2 = secondary
AcctServerIpAddress	Specifies the IP Address of the accounting server.	IP Address String xxx.xxx.xxx.xxx (0 - 255)
LocalIpAddress	Specifies the Local IP Address for the accounting server client.	IP Address String xxx.xxx.xxx.xxx (0 - 255)

6. Click *OK*.
7. The accounting server is added to the *Accounting Server* tab.

Editing Accounting Server IP Addresses

To edit an accounting server IP address for the Call Processor using EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *Accounting Servers*.
4. Double-click the IP Address under the *AcctServerIpAddress* column you want to edit.

5 Highlight what you want to edit.

6 Type in the new IP address.

7 Click in a different field to activate the *Save all* button.

8 Click *Save all*.

The new IP Address is added and is listed in the *AcctServerIpAddress* column of EMS.

Removing Accounting Servers

To remove an accounting server through EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Accounting Servers*.

4 Put cursor in the row of the accounting server you want to delete.

5 Click *Delete*.

The accounting server is removed from the VCX IP Telephony Server.

Adding Authentication Servers

To add an authentication server through EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Authentication Servers*.

4 Click *Add*.

The *Add row to table* window appears.

5 Fill in the fields according to the descriptions in Table 24.

Table 25 Authentication Server Tab Descriptions in EMS

Attribute	Description	Values
Priority	Specifies the priority of the authentication server.	Integer: 1 - 5 1 = primary) 2 = secondary
AuthServerIpAddress	Specifies the IP Address of the authentication server.	IP Address String xxx.xxx.xxx.xxx (0 - 255)

(continued)

Table 25 Authentication Server Tab Descriptions in EMS

Attribute	Description	Values
LocalIpAddress	Specifies the Local IP Address for the authentication server client.	IP Address String xxx.xxx.xxx.xxx (0 - 255)

6 Click *OK*.

The authentication server is added to the *Authentication Server* tab.

Editing Authentication Server IP Addresses

To edit an authentication server IP address for the Call Processor using EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Authentication Servers*.

4 Double-click the IP Address under the *AuthServerIpAddress* column you want to edit.

5 Highlight what you want to edit.

6 Type in the new IP address.

7 Click in a different field to activate the *Save all* button.

8 Click *Save all*.

The new IP Address is added to the nmdb.xml file and is listed in the *AuthServerIpAddress* column of EMS.

Removing Authentication Servers

To remove an authentication server through EMS:

1 Log into EMS.

2 From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.

3 From the *Properties* tab, click *Authentication Servers*.

4 Put cursor in the row of the authentication server you want to delete.

5 Click *Delete*.

The authentication server is removed from the VCX IP Telephony Server.

Adding Directory Servers

To add an directory server through EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *Directory Servers*.
4. Click *Add*.

   The *Add row to table* window appears.
5. Fill in the fields according to the descriptions in Table 26.

Table 26 Directory Server Tab Descriptions in EMS

Attribute	Description	Values
Priority	Specifies the priority of the directory server.	Integer: 1 - 5 1 = primary) 2 = secondary
DirServerIpAddress	Specifies the IP Address of the directory server.	IP Address String xxx.xxx.xxx.xxx (0 - 255)
LocalIpAddress	Specifies the Local IP Address for the directory server client.	IP Address String xxx.xxx.xxx.xxx (0 - 255)

6. Click *OK*.
7. The directory server is added to the *Directory Server* tab.

Editing Directory Server IP Addresses

To edit a directory server IP address for the Call Processor using EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *Directory Servers*.
4. Double-click the IP Address under the *DirServerIpAddress* column you want to edit.
5. Highlight what you want to edit.
6. Type in the new IP address.
7. Click in a different field to activate the *Save all* button.
8. Click *Save all*.

   The new IP Address is added to the nmdb.xml file and is listed in the *DirServerIpAddress* column of EMS.

Removing Directory Servers

To remove an directory server through EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor.*
3. From the *Properties* tab, click *Directory Servers*.
4. Put cursor in the row of the directory server you want to delete.
5. Click *Delete*.

   The directory server is removed from the VCX IP Telephony Server.

Adding VCX Data Servers

To add a VCX data server through EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor.*
3. From the *Properties* tab, click *Data Servers*.
4. Click *Add*.

   The *Add row to table* window appears.
5. Fill in the fields according to the descriptions in Table 24.

Table 27 VCX Data Server Tab Descriptions in EMS

Attribute	Description	Values
Priority	Specifies the priority of the VCX data server.	Integer: 1 - 5 1 = primary) 2 = secondary
DataServerIpAddress	Specifies the IP Address of the VCX data server.	IP Address String xxx.xxx.xxx.xxx (0 - 255)
LocalIpAddress	Specifies the Local IP Address for the VCX data server client.	IP Address String xxx.xxx.xxx.xxx (0 - 255)

6. Click *OK*.
7. The VCX data server is added to the *Data Servers* tab.

Editing VCX Data Server IP Addresses

To edit a VCX data server IP address for the Call Processor using EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *Data Servers*.
4. Double-click the IP Address under the *DataServerIpAddress* column you want to edit.
5. Highlight what you want to edit.
6. Type in the new IP address.
7. Click in a different field to activate the *Save all* button.
8. Click *Save all*.

   The new IP Address is added and is listed in the *DataServerIpAddress* column of EMS.

Removing VCX Data Servers

To remove a VCX data server through EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *Data Servers*.
4. Put cursor in the row of the VCX data server you want to delete.
5. Click *Delete*.

   The VCX data server is removed from the VCX IP Telephony Server.

Enabling or Disabling Accounting Server

To enable or disable an accounting server:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *Accounting Server Configuration*
4. From the *UseAccountingServerAdmin* row, double-click the field in the same row under the *3COM Sip Call Processor* column.
   - To enable, change to *true*.
   - To disable, change to *false*.
5. Click *Save All*.

Enabling or Disabling Authentication Server

To enable or disable an authentication server:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor.*
3. From the *Properties* tab, click *Authentication Server Configuration.*
4. From the *UseAuthetication*ServerAdmin row, double-click the field in the same row under the *3COM Sip Call Processor* column.
   - To enable, change to *true*.
   - To disable, change to *false*.
5. Click *Save All*.

Enabling or Disabling Directory Server

To enable or disable a directory server:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor.*
3. From the *Properties* tab, click *Directory Server Configuration.*
4. From the *UseDirectoryServerAdmin* row, double-click the field in the same row under the *3COM Sip Call Processor* column.
   - To enable, change to *true*.
   - To disable, change to *false*.
5. Click *Save All*.

Enabling or Disabling VCX Data Server

To enable or disable a VCX data server:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor.*
3. From the *Properties* tab, click *Data Server Configuration.*
4. From the *UseDataServerAdmin* row, double-click the field in the same row under the *3COM Sip Call Processor* column.
   - To enable, change to *true*.
   - To disable, change to *false*.
5. Click *Save All*.

Monitoring Call Statistics

You can verify the number of active calls, attempted calls, successfully connected calls, and unsuccessful calls using EMS. To monitor call statistics for the call processor:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *Call Statistics*.
4. For description of each field, see Table 28.

Table 28 Call Statistics Field Attribute Descriptions

Attribute	Description
CurrentActiveCalls	This number defines the total number of calls that are in process of being connected, are already connected, or are in process of being disconnected.
TotalAttemptCalls	This number defines the total number of origination call attempts that were handled by the call processor.
TotalSuccessfulCalls	This number defines the total number of calls that were successfully connected through this call processor.
TotalUnsuccessfulCalls	This number defines the total number of calls that were dropped by this call processor or rejected by this call processor or calls that could not be connected.

Verifying State of a Call Processor

Use the *State* tab to view basic statistics for the VCX data server.

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3Com Sip Call Processor*.
3. From the *Properties* tab, click *State*.
4. For a description of each field, see Table 29.

Table 29 Call Processor State Tab

Attribute	Description	Settings
Operational State	Indicates the current operational state.	Read-only
Reserved	Indicates if the object is reserved by another user.	Read-only
Reserved by	Indicates who has reserved the object.	Read-only

(continued)

Table 29 Call Processor State Tab (continued)

Attribute	Description	Settings
Software status	The current operational state of the entity. If AdminStatus is down, then OperStatus should be down. If AdminStatus is changed to up, through the entity command interface, then OperStatus should change to up if the entity is operational; it should remain in the down state if and only if there is a fault that prevents it from going to the up state; it should remain in the notPresent state if the entity has missing components. If the entity is operational, but not responding to queries, the state is notResponding.	Read-only
Usage State	Indicates how busy the resource is.	Read-only

Call Processor Maintenance

This section provides maintenance tasks that are specific to just the call processor.

Restarting the Call Processor

To restart the Call Processor:

1. From the EMS explorer tree, navigate to the *3Com Sip Call Processor*.
2. Right-click the Call Processor and select *Maintenance* and then click *Hard Restart*.

Stopping the Call Processor

To stop the Call Processor:

1. From the EMS explorer tree, navigate to the *3Com Sip Call Processor*.
2. Right-click the Call Processor and select *Maintenance* and then click *Hard Shutdown*.

Verifying the Call Processor State

To verify the state of the Call Processor using EMS:

1. Login to EMS.
2. Navigate to the Call Processor.
3. The status indicator light that appears next to the *3COM Sip Call Processor* identifies these states:
   - green — it is running
   - red — it is down

QoS Monitoring

In QoS Monitoring, the Call Processor is where you specify the 3Com phones (endpoints) that you want to monitor, and where you set the default threshold values for the statistics you want to gather.

See Chapter 10, Using QoS Monitoring, for more information and instructions.

5 CONFIGURING THE IP MESSAGING SYSTEM

Verifying State of an IP Messaging Server

Use the *State* tab to view basic statistics for the IP Messaging server.

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3COM IP Messaging System*.
3. From the *Properties* tab, click *State.*
4. For a description of each field, see Table 30.

Table 30 IP Messaging State Tab

Attribute	Description	Settings
Operational State	Indicates the current operational state.	Read-only
Reserved	Indicates if the object is reserved by another user.	Read-only
Reserved by	Indicates who has reserved the object.	Read-only
Software status	The current operational state of the entity. If AdminStatus is down, then OperStatus should be down. If AdminStatus is changed to up, through the entity command interface, then OperStatus should change to up if the entity is operational; it should remain in the down state if and only if there is a fault that prevents it from going to the up state; it should remain in the notPresent state if the entity has missing components. If the entity is operational, but not responding to queries, the state is notResponding.	Read-only
Usage State	Indicates how busy the resource is.	Read-only

IP Messaging Server Identification Tab

Use the *Identification* tab to view basic statistics for the IP Messaging server such as the software version.

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *IP Messaging System*.
3. From the *Properties* tab, click *Identification.*
4. For a description of each field, see Table 31.

Table 31 IP Messaging Identification Tab

Attribute	Description	Settings
Alias	A management defined alias for the entity saved across reboots.	String
Class	The internal schema className for this object.	Read-only
FQN	The fully qualified name of this object. This is the complete path from the root of all objects.	Read-only
Last State Change	The value of sysUpTime at the time the entity entered its current operational state.	Read-only
User Label	A label assign by the user.	String
Vendor	The vendor name of this software.	Read-only
Version	The current version of this software.	Read-only

Verifying IP Messaging Software Version

To verify what the IP Messaging software version is using EMS:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *IP Messaging System*.
3. From the *Properties* tab, click *Identification*.
4. The IP Messaging software version is listed, in the *Version* field.

Verifying Connection to Call Builder Interface

To verify if the IP Messaging Server is connected to the call builder interface (CBI):

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *IP Messaging System*.
3. From the *Properties* tab, click *Status.*
4. The *Application Status* field, should show *connected*. If the CBI is not connected, the *Application Status* field shows *not connected*.

Configuring Call Builder Variables

This section outlines the various Call Builder components that are a part of the IP Messaging Server.

Configuring DTMF Payload

To configure the DTMF payload:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *IP Messaging System*.
3. From the *Properties* tab, click *Call Builder Config.*
4. In the *DefaultDTMFPayloadType* field, type in a number between 1 and 256.
5. Click *Save All*.

Configuring RTP

RTP packets are generally sent from the Call Builder to the server that the VCX data server is located on.

To configure where RTP packets are sent:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *IP Messaging System*.
3. From the *Properties* tab, click *Call Builder Config.*
4. In the *RTPAddress* field, type the IP Address of the server you want to sent RTP packets to.
5. In the *RTPStartPort* field, type the port number of the server you want to send RTP packets to.
6. Click *Save All*.

Configuring Dialing Domain of IP Messaging Server

The dialing domain is used as part of a SIP phone number and helps determines how to route the call.

To configure the dialing domain:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *IP Messaging System*.
3. From the *Properties* tab, click *Call Builder Config.*
4. In the *SIPDefaultDialingDomain* field, type the dialing domain that you want to apply to the IP Messaging server.
5. Click *Save All*.

Configuring Call Processors for IP Messaging Server

This section provides instructions on how to define the primary and secondary call processor, which is necessary for call processing.

To configure the call processors associated with this IP Messaging server:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *IP Messaging System*.
3. From the *Properties* tab, click *Call Builder Config.*
4. In the *SIPProxy1* field, type the IP address of the primary call processor.
5. In the *SIPProxy2* field, type the IP address of the secondary call processor.
6. Click *Save All*.

Configuring SIP Registration

This section provides instructions on how to enable or disable SIP registration (default is enabled) and how to configure the SIP Registration interval. Registration is used to ensure that end points are able to receive messages.

To configure the SIP Registration variables:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *IP Messaging System*.
3. From the *Properties* tab, click *Call Builder Config*.
4. In the *SIPRegistrationEnabled* field, choose *true* to enable SIP registration or *false* to disable it.
5. In the *SIPRegistrationInterval* field, specify (in minutes) how often you want SIP registration to occur. The default is five minutes.
6. Click *Save All*.

Configuring the Signaling Server

This section provides instructions on how to configure the VCX data server IP address and port number.

To configure VCX data server IP address and port number associated with the call builder:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *IP Messaging System*.
3. From the *Properties* tab, click *Call Builder Config*.
4. In the *SIPSignallingAddress* field, type the IP address of the server that the VCX data server is located on.
5. In the *SIPSignallingPort* field, type the port of the VCX data server where that receives the SIP messages.
6. Click *Save All*.

IP Messaging Server Maintenance

This section describes maintenance tasks that are specific to just the IP Messaging server.

Verifying the IP Messaging Server State

To verify the state of the IP Messaging Server:

1. Log in to EMS.
2. Navigate to the IP Messaging Server.
3. The status indicator light that appears next to the *3Com IP Messaging System* identifies these system states:
   - Green — The IP Messaging server is running
   - Red — The IP Messaging server is not running

Gracefully Stopping the IP Messaging Server

When an IP Messaging server is stopped gracefully, all calls that are in progress continue their connections, but no new calls can take place.

To stop the IP Messaging server:

1. From the EMS explorer tree, navigate to the *3Com IP Messaging System*.
2. Right-click the IP Messaging server, select *Maintenance*, and then click *Graceful Shutdown*.

Stopping the IP Messaging Server Hard

When an IP Messaging server is stopped hard, all calls that are in progress are disconnected.

To stop the IP Messaging server hard:

1. From the EMS explorer tree, navigate to the *3Com IP Messaging System*.
2. Right-click the IP Messaging server, select *Maintenance,* and then click *Hard Shutdown*.

Gracefully Restarting the IP Messaging Server

When an IP Messaging server is restarted gracefully, all calls that are in progress continue their connections, but no new calls can take place.

To gracefully restart the IP Messaging server:

1. From the EMS explorer tree, navigate to the *3Com IP Messaging System*.
2. Right-click the IP Messaging Server and select *Maintenance* and then click *Graceful Restart*.

Restarting the IP Messaging Server Hard

When an IP Messaging server is restarted hard, all calls that are in progress are disconnected.

To perform a hard restart of the IP Messaging server:

1. From the EMS explorer tree, navigate to the *3Com IP Messaging System*.
2. Right-click the IP Messaging Server and select *Maintenance* and then click *Hard Restart*.

6 CONFIGURING THE SIP PHONE DOWNLOADER

This chapter describes how to configure the SIP phone downloader. The SIP downloader is initially configured through the installation scripts. Use this chapter to edit any SIP downloader information.

Configuring the SIP Phone Downloader

Use this section to configure the SIP phone downloader. The Local Device Name needs to be changed to what ever your host is configured as.

CAUTION: *If using a dual download environment, two issues can arise: 1) The WAN link utilization can be stressed during a large download (especially if the primary server is down). For example, if you have a large number of phones pointing to a primary download server on the LAN and a secondary download server that sits across a WAN. If the primary building takes a power hit, the download server might take 15 minutes or more to recover, but the phones will all reboot in a few seconds and begin looking for their download. This will begin to flood the WAN link. 2) If there is a version mismatch, you could get into a situation where phones go into a continuous cycle of rebooting and downloading.*

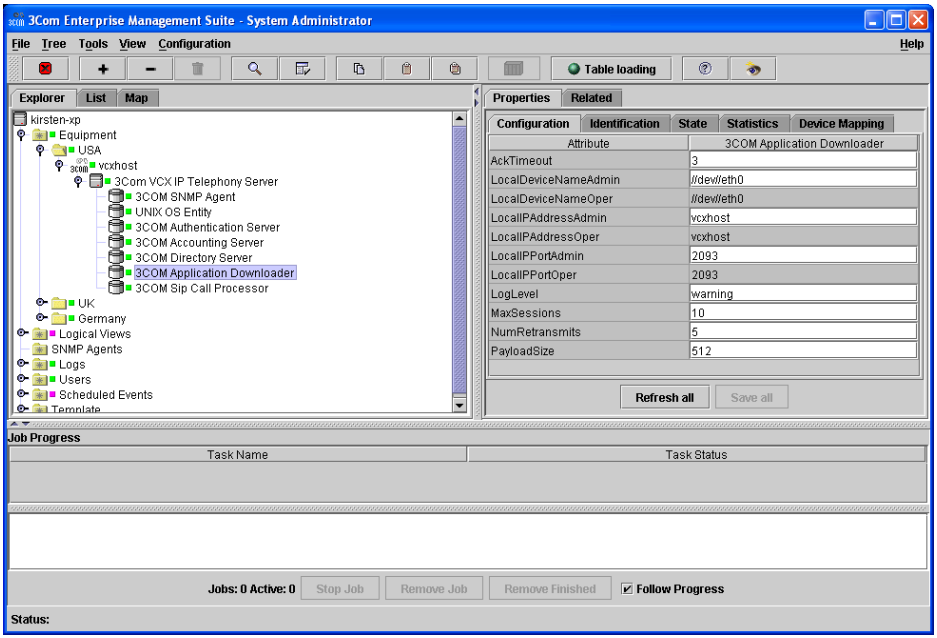
Choose one of the 2 Ethernet interfaces (recommend *eth1*) you want this SIP phone downloader to use.

In super user mode, type the following to print a list of the various downloaders:

```
ifconfig -a
```

1 Launch EMS and discover the server that the SIP Phone Downloader is installed on. The navigation tree looks similar to Figure 1.

Figure 1 SIP Phone Downloader Configuration Tab



2 Click *3COM Application Downloader*.

3 From the *Properties* tabs, click *Configuration*.

4 Set the following attributes by double-clicking each field:

   a **LocalDeviceNameAdmin** — Use //dev//eth1, which is your NIC device.

      Make sure the NIC device has read and write permissions for the cworks user; otherwise, change the permission on this device or run this application as the super user.

   b **LocalIPAddressAdmin** — the IP Address of the server the SIP Phone Downloader is installed on. It picks a default.

   c **LocalIPPortAdmin** — Do not change this since it cannot be configured on the 3Com phone.

5 Click *Save all*.

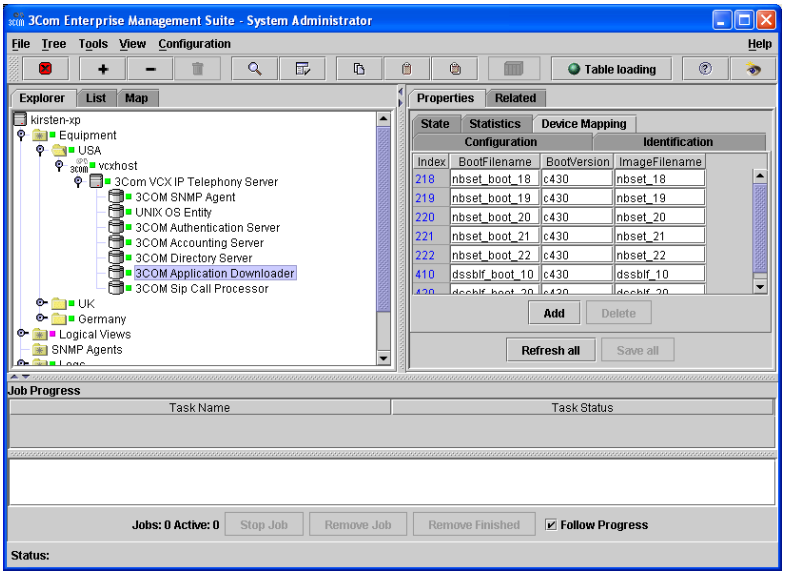
Device Mapping

The SIP Phone Downloader application comes with two images: ndset_boot_19 and nbset_19, and the boot version is a508. All images need to be stored in the $HOME/sipdl/images.

To configure the device mapping:

1 Launch EMS and discover the server that the SIP Phone Downloader is installed on. The navigation tree looks similar to Figure 2.

Figure 2 SIP Phone Downloader Device Mapping Tab



2 Click *3Com Application Downloader*.

3 From the *Properties* tabs, click *Device Mapping*.

4 Set the following attributes by double-clicking each field:

- **BootFilename** — SIP phone downloader code and firmware code provided by the NBX phone. This value should be set to nbset_boot_19.
- **BootVersion** — Version of the firmware code. This value should be set to a508.
- **ImageFilename** — Application code and SIP Phone application. This value should be set to nbset_19.

5 Click *Save all*.

SIP Phone Downloader Maintenance

This section provides maintenance tasks that are specific to just the application downloader.

Restarting the Application Downloader

To restart the application downloader:

1. From the EMS explorer tree, navigate to the *3Com Application Downloader*.
2. Right-click the application downloader and select *Maintenance* and then click *Hard Restart*.

Stopping the Application Downloader

To stop the application downloader:

1. From the EMS explorer tree, navigate to the *3Com Application Downloader*.
2. Right-click the application downloader and select *Maintenance* and then click *Hard Shutdown*.

Verifying the Application Downloader State

To verify the state of the application downloader:

1. Login to EMS.
2. Navigate to the application downloader.
3. The status indicator light that appears next to the *3COM Application Downloader* identifies these states:
   - green — it is running
   - red — it is down

7 CONFIGURING THE COMMON AGENT

The Common Agent is referred to as the SNMP Agent in EMS.

Verifying State of the Common Agent

Use the *State* tab to view basic statistics for the common agent.

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3COM SNMP Agent*.
3. From the *Properties* tab, click *State.*
4. For a description of each field, see Table 32.

Table 32 Common Agent State Tab

Attribute	Description	Settings
Operational State	Indicates the current operational state.	Read-only
Reserved	Indicates if the object is reserved by another user.	Read-only
Reserved by	Indicates who has reserved the object.	Read-only
Software status	The current operational state of the entity. If AdminStatus is down, then OperStatus should be down. If AdminStatus is changed to up, through the entity command interface, then OperStatus should change to up if the entity is operational; it should remain in the down state if and only if there is a fault that prevents it from going to the up state; it should remain in the notPresent state if the entity has missing components. If the entity is operational, but not responding to queries, the state is notResponding.	Read-only
Usage State	Indicates how busy the resource is.	Read-only

Verifying Common Agent Software Version

To verify what the common agent version is:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3COM SNMP Agent*.
3. From the *Properties* tab, click *Identification*.
4. From the *Version* field, the SNMP agent version is listed.

Common Agent Identification Tab

Use the *Identification* tab to view basic statistics for the common agent such as the software version.

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *3COM SNMP Agent*.
3. From the *Properties* tab, click *State.*
4. For a description of each field, see Table 33.

Table 33 IP Messaging Identification Tab

Attribute	Description	Settings
Alias	A management defined alias for the entity saved across reboots.	String
Class	The internal schema className for this object.	Read-only
FQN	The fully qualified name of this object. This is the complete path from the root of all objects.	Read-only
Last State Change	The value of sysUpTime at the time the entity entered its current operational state.	Read-only
User Label	A label assign by the user.	String
Vendor	The vendor name of this software.	Read-only
Version	The current version of this software.	Read-only

Enabling Back-end Server Traps

Back-end server traps can be enabled and disabled at the 3COM SNMP Agent level.

Alarm notification requires two components: a device (the 3Com VCX IP Telephony Server) to send traps and a device (an alarm server) to receive them and alert the network manager. Traps are sent over the Simple Network Management Protocol (SNMP), which runs on the User Datagram Protocol / Internet Protocol (UDP/IP).

First, use Enterprise Management Suite to tell the 3Com VCX IP Telephony Server where to send traps. Then use Enterprise Management Suite to enable the traps. Finally, start the trap generation.

Configuring Trap Destinations

To configure a trap destination:

1. From the *Explorer* tab, select *3Com VCX IP Telephony Server* to configure.
2. From the *Properties* tab, select *Trap Destinations*.
3. At the bottom of the right-hand pane, click *Add*.

   The *Add Row to Table* dialog box opens.
4. Type the *IP address* and *Community string* for the trap destination.
5. Click *OK*.

   The Trap Destinations tab changes to show the new trap destination.

Enabling Back-end Server Traps

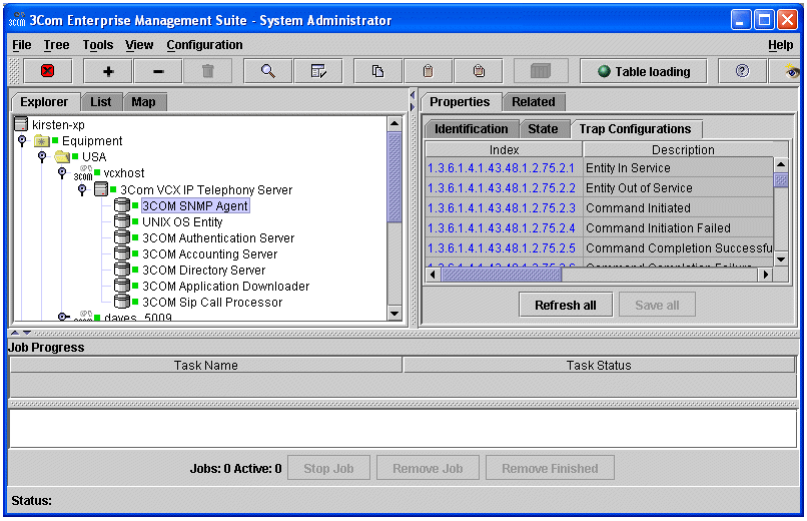
The 3Com VCX IP Telephony Server can generate traps when the authentication server changes state.

To enable back-end server traps:

1. From the *Explorer* tab, click *3Com VCX IP Telephony Server* to configure.
2. Select the *3COM SNMP Agent* element.
3. From the *Properties* tab, select *Trap Configurations*.

   Figure 3 shows the location for all back-end server traps.

Figure 3 Enabling Back-end Server Traps



4 Enable and disable SNMP traps according to your customized needs.

5 Click *Save all*.

6 Back up the server configuration.

Receiving Traps

To start and stop receiving SNMP traps:

1 From the *Explorer* tab, right-click *3Com VCX IP Telephony Server*.

2 From the pop-up menu, select *Traps*.

From the pop-up menu, select *Start receiving* to begin receiving SNMP traps or *Stop receiving* to stop receiving SNMP traps.

Common Agent Maintenance

This section provides maintenance tasks that are specific to just the Common Agent.

Restarting the Common Agent

To restart the Common Agent:

1. From the EMS explorer tree, navigate to the *3Com SNMP Agent*.
2. Right-click the SNMP Agent and select *Maintenance* and then click *Hard Restart*.

Verifying the Common Agent State

To verify the state of the Common Agent:

1. Login to EMS.
2. Navigate to the SNMP Agent.
3. The status indicator light that appears next to the *3Com SNMP Agent* identifies these states:
   - green — it is running
   - red — it is down

8 CONFIGURING THE OS ENTITY

The 3Com Convergence Applications Suite is built on 3Com Linux. This chapter provides details on how to verify the O/S version a server is built on and whether or not it is operational.

Verifying State of the O/S

Use the *State* tab to view basic statistics for the operating system.

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *UNIX OS Entity*.
3. From the *Properties* tab, click *State*.
4. For a description of each field, see Table 34.

Table 34 O/S Entity State Tab

Attribute	Description	Settings
Operational State	Indicates the current operational state.	Read-only
Reserved	Indicates if the object is reserved by another user.	Read-only
Reserved by	Indicates who has reserved the object.	Read-only
Software status	The current operational state of the entity. If AdminStatus is down, then OperStatus should be down. If AdminStatus is changed to up, through the entity command interface, then OperStatus should change to up if the entity is operational; it should remain in the down state if and only if there is a fault that prevents it from going to the up state; it should remain in the notPresent state if the entity has missing components. If the entity is operational, but not responding to queries, the state is notResponding.	Read-only
Usage State	Indicates how busy the resource is.	Read-only

Verifying O/S Software Version

To verify what the operating system version is:

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *UNIX OS Entity*.
3. From the *Properties* tab, click *Identification*.
4. From the *Version* field, the O/S version is listed.

O/S Identification Tab

Use the *Identification* tab to view basic statistics for the operating system such as the software version.

1. Log into EMS.
2. From the *Explorer* tab, navigate to the *UNIX OS Entity*.
3. From the *Properties* tab, click *State*.
4. For a description of each field, see Table 35.

Table 35 IP Messaging Identification Tab

Attribute	Description	Settings
Alias	A management defined alias for the entity saved across reboots.	String
Class	The internal schema className for this object.	Read-only
FQN	The fully qualified name of this object. This is the complete path from the root of all objects.	Read-only
Last State Change	The value of sysUpTime at the time the entity entered its current operational state.	Read-only
User Label	A label assign by the user.	String
Vendor	The vendor name of this software.	Read-only
Version	The current version of this software.	Read-only

O/S Entity Maintenance

This section provides maintenance tasks that are specific to just the O/S Entity.

Gracefully Restarting the O/S Entity

To gracefully restart the O/S Entity:

1. From the EMS explorer tree, navigate to the *UNIX OS Entity*.
2. Right-click the O/S Entity and select *Maintenance* and then click *Hard Restart*.

Verifying the O/S Entity State

To verify the state of the O/S Entity:

1. Login to EMS.
2. Navigate to the O/S Entity.
3. The status indicator light that appears next to the *UNIX OS Entity* identifies these states:
   - green — it is running
   - red — it is down

9 UPGRADING AND MAINTAINING VCX SYSTEMS AND COMPONENTS

This chapter provides details on how to remotely upgrade your VCX systems and/or components using EMS. It also explains how to maintain versions of VCX on your system, including viewing installed versions and removing unused versions of VCX.

Sections in this chapter include:

- Maintaining VCX Versions
- Upgrading VCX Server Software from 7.0 to 7.1
- Upgrading VCX Server Software from 6.0x to 7.0

To upgrade VCX Server Software from 7.1x to 7.1y, follow the instructions in Upgrading VCX Server Software from 7.0 to 7.1.

CAUTION: *3Com Corporation strongly recommends that you backup your VCX system before you perform an upgrade. See* Creating Backup Configuration Files *for instructions. If the upgrade fails and you must downgrade, you can restore data from these backups as part of the downgrade procedure.*

Maintaining VCX Versions

EMS allows you to view all of the installed versions of VCX on your system, and lets you remove old, unused versions of VCX.

Viewing Installed Versions of VCX

You will need to view and verify the versions of VCX installed on your system before you perform an upgrade.

To view all of the installed versions of VCX on your system:

1. From the EMS client *Explorer* tree, navigate to *3Com VCX IP Telephony Server*.
2. From the right-hand pane, click the *Installed Software Versions* tab.

   All of the versions installed on your system appear, with the date of installation, version number, and version state.

Removing an Unused Version of VCX

You cannot remove a currently active version of VCX from your system.

To remove an unused version of VCX from your system:

1. From the EMS client *Explorer* tree, navigate to *3Com VCX IP Telephony Server*.
2. In the right-hand pane, click the *Planned Upgrades* tab.
3. In the *Software Version To Be Removed* field, select the VCX version to be removed from the drop-down list. The drop-down list displays all of the installed VCX versions on the server.

You can remove unused versions of VCX only. You cannot remove a currently active VCX version.

4. Click *Save all* to save the version to be removed.
5. From the *Explorer* tab, right-click *3Com VCX IP Telephony Server*.
6. From the pop-up menu, select *Install Upgrade Images* and then select *Remove Installed Version*.

   The version of VCX is removed from your system.

Upgrading VCX Server Software from 7.0 to 7.1

This section describes the procedures required to upgrade a system running VCX server software version 7.0 to VCX server software version 7.1.These procedures upgrade the VCX system to an operational state and assumes the VCX system was operational prior to the upgrade occurring.

EMS does not allow individual component upgrades without first installing a new version for switchover. However, individual component upgrades can be performed without first installing a new version for switchover through the CLI interface.

These instructions can also be used for upgrading from version 7.1x to 7.1y.

This section assumes the VCX system is successfully operating at version 7.0.7c before you perform the upgrade. If your system is running an earlier version of VCX 7.0 software (or VCX 6.0 software), you must upgrade to 7.0.7c before upgrading to version 7.1. See Viewing Installed Versions of VCX *for instructions on verifying the version of VCX installed on your system. See* Upgrading a Multiple Site Configuration from 6.0.x to 7.0 *for instructions on upgrading from 6.0 to 7.0.*

This section covers the following configurations and/or components that can be upgraded using EMS:

- Upgrading a Multiple Site Configuration from 7.0 to 7.1
- Upgrading the VCX IP Telephony Software from 7.0 to 7.1
- Installing IP Messaging Software Patch Release
- Installing SIP Phone Downloader and Boot File Software Patch Releases

The components in a multi-site VCX system can be set up in many possible configurations. The procedures in this section describe upgrading a multi-site VCX system that includes two regions (Region 1 and Region 2) with multiple branch offices in each region. For instructions on upgrading a VCX system with other configurations (such as single-site systems with two or four servers, or multi-site systems with no branch offices), see the VCX Maintenance Guide.

Upgrading a Multiple Site Configuration from 7.0 to 7.1

This section describes how to upgrade a VCX configuration from version 7.0 to 7.1 where there is more than one regional office and branch offices present.

EMS does not allow individual component upgrades without first installing a new version for switchover. However, individual component upgrades can be performed without first installing a new version for switchover through the CLI interface.

These instructions assume a two-region office configuration where the regional offices use global messaging and the branch offices use local messaging configurations. When upgrading a region-to-region office configuration, replication needs to be dropped.

Multiple Site Upgrade Order

When upgrading a multiple site configuration keep this order in mind, which is outlined in more detail in the actual procedure:

- First, upgrade the replicated regional office VCX data servers.
- Second, upgrade the regional office IP Messaging servers.
- Third, upgrade the regional office Call Processing server.
- Fourth, upgrade the branch offices, starting with any that are hosted by the primary regional office.

Upgrade Instructions

The software upgrade package is provided by 3Com or your authorized 3Com reseller and must be installed using the following sequence of steps.

1. Copy the upgrade tar file(s) to the EMS server in the *<EMS_INSTALL_DIR>/software_upgrades/voice/SystemUpgrades* directory. This includes any software for the VCX data server, IP Messaging server, and/or the VCX call processing server.
2. If you have a replicated system, clear any replication errors before performing an upgrade, otherwise, go to step 3.
   a. From the EMS client explorer tree, for each VCX data server you want to drop replication from, click *3Com VCX IP Telephony Server*.
   b. Right-click *3Com VCX IP Telephony Server*, select *Database Replication*, and then click *Clear Replication Errors*.

If the Clear Replication Errors option is greyed out, make sure the Replication Settings tab is populated.

You can only delete replication errors on regional offices, not on branch offices.

3 Stop Tomcat on the region 1 and 2 VCX call processing server.

a From the EMS client explorer tree, for the region 1 VCX call processing server, click *3Com VCX IP Telephony Server*.

b Right-click *3Com VCX IP Telephony Server*, select *Web Provisioning*, and then click *Disable Web Provisioning.*

c From the EMS client explorer tree, for the region 2 VCX call processing server, click *3Com VCX IP Telephony Server*.

d Right-click *3Com VCX IP Telephony Server*, select *Web Provisioning*, and then click *Disable Web Provisioning.*

4 Stop replication between the region 1 and 2 VCX data servers.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b Right-click *3Com VCX IP Telephony Server*, select *Database Replication*, and then click *Drop Replication.*

5 Upgrade the region 1 VCX data server.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b From the right-hand of the pane, click the *Planned Upgrades* tab.

For each of these fields, the default setting is *None Planned*.

c Double-click the *Planned System Upgrade* field and click the *vcx-dataserver-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the filename to the database.

Once an upgrade file has been selected, the file must be transferred to the server.

e To transfer the file to the server, from the VCX data server *3Com VCX IP Telephony Server* right-click menu, click *Transfer Upgrade Images* and then click *Transfer System Upgrade File.*

These options are only available is a file has been selected for upgrade. The file is SFTP'd to the server, using the SFTP credentials in the *SSH/SFTP Settings* tab.

Now the upgrade file needs to be installed.

With *IP Telephony upgrades*, this only unpacks the tar file and creates the relevant directories on the server, it does not switch the running version to the new version.

f To install the upgrade file to the server, from the VCX data server *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Install System Upgrade*.

g Verify that the upgrade succeeded. To verify that the upgrade succeeded, the VCX data server *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Verify Upgrade*.

h Switch the software version for the VCX data server. A switchover needs to be performed before the new version takes effect.

i To switchover the VCX data server software, right-click the *3Com VCX IP Telephony Server* in the left pane of the EMS window, click *Install Upgrade Images* and then click *Switchover Version*.

You may have to wait a few seconds for the Install Upgrade Images menu to appear.

The server reboots and EMS provides status of the switchover progress.

- If the switchover is successful, you must change the Operational State from *degraded* to *enabled*. To do this, right-click the *3Com VCX IP Telephony Server*, click *State*, and then *Update*. The Operational State is changed to *enabled*. Go to step g to continue.
- If the switchover is not successful and you receive the error message *Error: failed, vcxUpgradeNewConfigFileNeeded,* you must create a new configuration file. To create the new configuration file:

  a Log in as root on the VCX server on which the switch failed and enter these commands:

  ```
  cd /opt/3com/VCX.<NewReleaseInstalled>/conf
  vcx-updatecfg
  ```

  b Enter the number that corresponds to the VCX version to which you are upgrading.

  c Press the Return key to specify the configuration file from the currently active VCX version.

  d When prompted for a configuration file name, enter VCXConfiguration.xml.

e Answer the questions appropriately for the server being upgraded.

f Perform the *Install Upgrade Images > Switchover Version* command again, as described previously in step i.

g To verify the version numbers of the newly installed software, click each component from the explorer tree and click the *Identification* tab.

h Click *Refresh all* to confirm that the latest software has been installed.

The software versions displayed for a single server may differ from each other. To correct this and make sure you are viewing the latest values, click Refresh all.

6 Stop the region 1 VCX data server before upgrading the region 2 VCX data server.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server.*

b Expand *3Com VCX IP Telephony Server,* and click *3Com VCX Data Server.*

c Right-click *3Com VCX Data Server,* select *Maintenance*, and then click *Hard Shutdown*.

7 Stop replication between the region 2 and 1 VCX data servers.

a From the EMS client explorer tree, for the region 2 VCX data server, click *3Com VCX IP Telephony Server.*

b Right-click *3Com VCX IP Telephony Server*, select *Database Replication*, and then click *Drop Replication*.

8 Upgrade the region 2 VCX data server. Repeat step a through step j in step 5 except perform the steps on the region 2 VCX data server.

9 Stop the region 2 VCX data server.

a From the EMS client explorer tree, for the region 2 VCX data server, click *3Com VCX IP Telephony Server.*

b Expand *3Com VCX IP Telephony Server,* and click *3Com VCX Data Server.*

c Right-click *3Com VCX Data Server,* select *Maintenance,* and then click *Hard Shutdown*.

10 Upgrade the region 2 VCX data server database on region 1.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b From the right-hand pane, click the *DB Schema Upgrade* tab.

c From the *Database Schema Site ID* field, enter the Region 2 site ID.

d Click *Save All*.

e Click the *3Com VCX IP Telephony Server* for the region 2 VCX data server.

f Right-click *3Com VCX IP Telephony Server*, and select *Database Upgrade*, and then click *Upgrade Database Schema*.

11 Upgrade the region 1 VCX data server database on region 2.

a From the EMS client explorer tree, for the region 2 VCX data server, click *3Com VCX IP Telephony Server*.

b From the right-hand pane, click the *DB Schema Upgrade* tab.

c From the *Database Schema Site ID* field, enter the Region 1 site ID.

d Click *Save All*.

e Click the *3Com VCX IP Telephony Server* for the region 1 VCX data server.

f Right-click *3Com VCX IP Telephony Server*, and select *Database Upgrade*, and then click *Upgrade Database Schema*.

12 Setup replication for the region 1 VCX data server.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Replication Settings* tab.

c From the *Master Def Site IP Address* field, enter the IP Address of the master definition site (usually the region 1 primary VCX data server).

d From the *Master Site IP Address* field, enter the IP Address of the master site (usually the region 2 primary VCX data server).

e From the *Site ID* field, enter the site ID of the Region 1 VCX data server.

f Click *Save All*.

g Right-click *3Com VCX IP Telephony Server*, select *Database Replication,* and then click *Setup Database Replication.*

13 Setup replication for the region 2 VCX data server.

a From the EMS client explorer tree, for the region 2 VCX data server, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Replication Settings* tab.

c From the *Master Def Site IP Address* field, enter the IP Address of the master definition site (usually the region 2 primary VCX data server).

d From the *Master Site IP Address* field, enter the IP Address of the master site (usually the region 1 primary VCX data server).

e From the *Site ID* field, enter the site ID of the Region 1 VCX data server.

f Click *Save All*.

g Right-click *3Com VCX IP Telephony Server*, select *Database Replication,* and then click *Setup Database Replication.*

14 Start the Region 1 VCX data server. This cannot be done until the replication setup is finished, which takes a minimum of 20 minutes.

To verify if the replication is finished, right-click *3Com VCX IP Telephony Server* of the VCX data server, select *Database Replication*, and then click *Check Database Replication.* Once complete the *Job Status* pane of the EMS client lists `Check Database Replication complete`.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com VCX Data Server.*

c Right-click *3Com VCX Data Server,* select *Maintenance,* and then click *Hard Restart.*

15 Start the Region 2 VCX data server. This cannot be done until the replication setup is finish, which takes a minimum of 20 minutes.

To verify if the replication is finished, right-click *3Com VCX IP Telephony Server* of the VCX data server, select *Database Replication*, and then click *Check Database Replication.* Once complete the *Job Status* pane of the EMS client lists `Check Database Replication complete`.

a From the EMS client explorer tree, for the region 2 VCX data server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com VCX Data Server.*

c Right-click *3Com VCX Data Server,* select *Maintenance,* and then click *Hard Restart.*

16 Shut down the primary IP Messaging server.

a From the EMS client explorer tree, for the primary IP Messaging server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com IP Messaging System.*

c Right-click *3Com IP Messaging System,* select *Maintenance,* and then click *Graceful Shutdown.*

17 Shut down the secondary IP Messaging server.

a From the EMS client explorer tree, for the secondary IP Messaging server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com IP Messaging System.*

c Right-click *3Com IP Messaging System,* select *Maintenance,* and then click *Graceful Shutdown.*

18 Upgrade the primary IP Messaging server.

a From the EMS client explorer tree, for the primary IP Messaging server, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-ipmsg-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the IP Messaging server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the IP Messaging server, for the primary IP Messaging server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

i To verify the version number of the newly installed software, click the IP Messaging server from the explorer tree and then click the *Identification* tab.

j Click *Refresh all* to confirm that the latest software has been installed.

19 Stop the primary IP Messaging server.

a From the EMS client explorer tree, for the primary IP Messaging server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com IP Messaging System.*

c Right-click *3Com IP Messaging System,* select *Maintenance,* and then click *Graceful Shutdown.*

20 Upgrade the secondary IP Messaging server.

a From the EMS client explorer tree, for the secondary IP Messaging server, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-ipmsg-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the IP Messaging server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the IP Messaging server, for the secondary IP Messaging server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

i To verify the version number of the newly installed software, click the IP Messaging server from the explorer tree and then click the *Identification* tab.

j Click *Refresh all* to confirm that the latest software has been installed.

21 Restart the primary IP Messaging server.

a From the EMS client explorer tree, for the primary IP Messaging server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com IP Messaging System*.

c Right-click *3Com IP Messaging System,* select *Maintenance,* and then click *Graceful Restart*.

22 Upgrade the primary VCX call processing server.

a From the EMS client explorer tree, for the primary VCX call processing server, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-callserver-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the VCX calling processing server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the VCX calling processing server, for the primary VCX calling processing server, click *3Com VCX IP Telephony Server*.

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

i To verify the version number of the newly installed software, from the explorer tree, for the primary VCX call processing server, click *3Com VCX IP Telephony Server*.

j In the left hand pane, click the *Identification* tab.

k Click *Refresh all* to confirm that the latest software has been installed.

23 Upgrade the secondary VCX call processing server.

a From the EMS client explorer tree, for the secondary VCX call processing server, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-callserver-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the VCX calling processing server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the VCX calling processing server, for the secondary VCX calling processing server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

i To verify the version number of the newly installed software, from the explorer tree, for the secondary VCX call processing server, click *3Com VCX IP Telephony Server*.

j In the left hand pane, click the *Identification* tab.

k Click *Refresh all* to confirm that the latest software has been installed.

24 Upgrade the Billing Support server.

a From the EMS client explorer tree, for the server where the billing support server is installed, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-bss-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the billing support server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the billing support server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

25 Upgrade the branch office(s), starting with any that are a part of Region 1.

a Stop Tomcat on the host VCX call processing server.

b From the EMS client explorer tree, for the host VCX call processing server, click *3Com VCX IP Telephony Server.*

c Right-click *3Com VCX IP Telephony Server*, select *Web Provisioning*, and then click *Disable Web Provisioning*.

- To upgrade an *IP Telephony Server* branch office go to step 26 on page 116.
- To upgrade an *IP Telephony Server and IP Messaging Server* branch office go to step 27 on page 116.

26 Upgrade an IP Telephony Server branch office (Soft Switch).

a From the EMS client explorer tree, for the branch office, click *3Com VCX IP Telephony Server.*

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-softswitch<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the branch office server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the branch office server, for the branch office server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

i To verify the version number of the newly installed software, from the explorer tree, for the branch office server, click *3Com VCX IP Telephony Server*.

j In the left hand pane, click the *Identification* tab.

k Click *Refresh all* to confirm that the latest software has been installed.

If you have another branch office to upgrade in this region, go to step 25 on page 115.

If this is the last branch office to upgrade for this region, go to step 28 on page 117.

27 Upgrade an IP Telephony Server and IP Messaging branch office (All in One Server).

a From the EMS client explorer tree, for the branch office, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-all-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the branch office server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the branch office server, for the branch office server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

i To verify the version number of the newly installed software, from the explorer tree, for the branch office server, click *3Com VCX IP Telephony Server.*

j In the left hand pane, click the *Identification* tab.

k Click *Refresh all* to confirm that the latest software has been installed.

If you have another branch office to upgrade in this region, go to step 25 on page 115.

If this is the last branch office to upgrade for this region, go to step 28 on page 117.

28 Restart Tomcat on the host regional office VCX call processing server.

a From the EMS client explorer tree, for the host VCX call processing server, click *3Com VCX IP Telephony Server.*

b Right-click *3Com VCX IP Telephony Server*, select *Web Provisioning*, and then click *Enable Web Provisioning.*

If you have another branch office to upgrade in a different region, go to step 25 on page 115.

If you have no more branch offices to upgrade, the upgrade is complete.

Upgrading the VCX IP Telephony Software from 7.0 to 7.1

EMS provides support for remote software upgrades of VCX IP Telephony software, from version 7.0 to 7.1.

EMS does not allow individual component upgrades without first installing a new version for switchover. However, individual component upgrades can be performed without first installing a new version for switchover through the CLI interface.

The software upgrade package is provided by 3Com or your authorized 3Com reseller and must be installed using the following sequence of steps.

1. The software (relevant tar files) to be upgraded MUST be located in the *<EMS_INSTALL_DIR>/software_upgrades/voice/SystemUpgrades* directory on the EMS server.
2. Once the tar file is in the correct directory, from the EMS client explorer tree, click *3Com VCX IP Telephony Server.*
3. From the right-hand of the pane, click the *Planned Upgrades* tab.

   For each of these fields, the default setting is *None Planned*.
4. Double-click the *Planned System Upgrade* field to choose the upgrade file.
5. Click *Save all* to commit the filename to the database.

   Once an upgrade file has been selected, the file must be transferred to the server.
6. To transfer the file to the server, from the *3Com VCX IP Telephony Server* right-click menu, click *Transfer Upgrade Images* and then click *Transfer System Upgrade File.*

   These options are only available is a file has been selected for upgrade. The file is SFTP'd to the server, using the SFTP credentials in the *SSH/SFTP Settings* tab.

   Now the upgrade file needs to be installed.

   With *IP Telephony upgrades*, this only unpacks the tar file and creates the relevant directories on the server, it does not switch the running version to the new version.

7 To install the upgrade file to the server, from the *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Install System Upgrade.*

8 Verify that the upgrade succeeded. To verify that the upgrade succeeded, the *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Verify Upgrade*.

9 Switch the software version for the VCX system software. A switchover needs to be performed before the new version will take effect.

10 To switchover the VCX system software, from the *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Switchover Version*.

The server reboots and EMS provides status of the switchover progress.

11 To verify the version numbers of the newly installed software, click the each component from the explorer tree and click the *Identification* tab.

12 Click *Refresh all* to confirm that the latest software has been installed.

Installing IP Messaging Software Patch Release

This section describes how to install an IP Messaging Software patch release. These instructions are specifically for a patch release, not a system upgrade.

1 The software patch release upgrade file MUST be located in the *<EMS_INSTALL_DIR>/software_upgrades/voice/IPMessagingUpgrades* directory on the EMS server.

2 Once the file is in the correct directory, from the EMS client explorer tree, click *3Com VCX IP Telephony Server.*

3 Click the *Planned Upgrades* tab in the right pane.

4 Double-click the text box to the right of *Planned IP Messaging Upgrade*.

5 From the list of items that appears, select the file that you downloaded to the EMS server IPMessagingUpgrades directory.

6 Click the Save all button.

7 Transfer the file to the VCX server.

a Right-click the server name (*3Com VCX IP Telephony Server<hostname>*) in the left pane of the EMS client window.

You must wait for a few seconds for the menu to appear.

b In the menu that appears, click *Transfer Upgrade Images*, and then *Transfer IPMS Upgrade File*.

In the Job Progress area of the window, progress messages appear in the Task Name and Task Status columns. The icon on the left initially appears yellow. After a few seconds, the icon turns green and the Task Status column shows that the file transfer was successful.

8 Install the upgrade software on the VCX server.

a Right-click the server name (*3Com VCX IP Telephony Server<hostname>*) in the left pane of the EMS client window.

You must wait for a few seconds for the menu to appear.

b In the menu that appears, click *Install Upgrade Images*, and then *Install IPMS Upgrade*.

In the Job Progress area of the window, progress messages appear in the Task Name and Task Status columns. The icon on the left initially appears yellow. After a few seconds, the icon turns green and the Task Status column shows that the upgrade was successful.

Installing SIP Phone Downloader and Boot File Software Patch Releases

This section describes how to install SIP Phone Downloader and Boot File software patch release files. These instructions are specifically for a patch release, not a system upgrade.

There are two possible phone-only software upgrades: Application Downloader software (PhoneApp) and Boot software (PhoneBoot). Depending on the VCX system configuration, the procedures are performed on one of these servers:

- IP Telephony and Messaging server (All in One server)
- IP Telephony server (Soft Switch server)
- Call Processing server (Call server)

PhoneApp Upgrade

Follow the procedures in this section to upgrade the PhoneApp software.

1 The software patch release upgrade file MUST be located in the *<EMS_INSTALL_DIR>/software_upgrades/voice/PhoneAppUpgrades* directory on the EMS server.

2 Once the file is in the correct directory, from the EMS client explorer tree, click *3Com IP Telephony Server <hostname>*.

3 Click the *Planned Upgrades* tab in the right pane.

4 Double-click the text box to the right of *Planned Phone App Upgrade*.

5 From the list of items that appears, select the file that you downloaded to the EMS server PhoneAppUpgrades directory.

6 Click the *Save all* button.

7 Transfer the file to the VCX server.

   a Right-click the server name (*3Com VCX IP Telephony Server<hostname>*) in the left pane of the EMS client window.

You must wait for a few seconds for the menu to appear.

   b In the menu that appears, click *Transfer Upgrade Images*, and then *Transfer PhoneApp Upgrade File*.

   In the Job Progress area of the window, progress messages appear in the Task Name and Task Status columns. The icon on the left initially appears yellow. After a few seconds, the icon turns green and the Task Status column shows that the file transfer was successful.

8 Install the upgrade software on the VCX server.

   a Right-click the server name (*3Com VCX IP Telephony Server<hostname>*) in the left pane of the EMS client window.

You must wait for a few seconds for the menu to appear.

   b In the menu that appears, click *Install Upgrade Images*, and then *Install PhoneApp Upgrade*.

   In the Job Progress area of the window, progress messages appear in the Task Name and Task Status columns. The icon on the left initially appears yellow. After a few seconds, the icon turns green and the Task Status column shows that the upgrade was successful.

The installation process unpacks the .tar file. The phones will pick up the new software the next time that they register or are rebooted.

PhoneBoot Upgrade

Follow the procedures in this section to upgrade the PhoneBoot software.

1 The software patch release upgrade file MUST be located in the *<EMS_INSTALL_DIR>/software_upgrades/voice/PhoneBootUpgrades* directory on the EMS server.

2 Once the file is in the correct directory, from the EMS client explorer tree, click *3Com IP Telephony Server <hostname>*.

3 Click the *Planned Upgrades* tab in the right pane.

4 Double-click the text box to the right of *Planned Phone Boot Upgrade*.

5 From the list of items that appears, select the file that you downloaded to the EMS server PhoneBootUpgrades directory.

6 Click the *Save all* button.

7 Transfer the file to the VCX server.

   a Right-click the server name (*3Com VCX IP Telephony Server<hostname>*) in the left pane of the EMS client window.

You must wait for a few seconds for the menu to appear.

   b In the menu that appears, click *Transfer Upgrade Images*, and then *Transfer Phone Boot Upgrade File*.

   In the Job Progress area of the window, progress messages appear in the Task Name and Task Status columns. The icon on the left initially appears yellow. After a few seconds, the icon turns green and the Task Status column shows that the file transfer was successful.

8 Install the upgrade software on the VCX server.

   a Right-click the server name (*3Com VCX IP Telephony Server<hostname>*) in the left pane of the EMS client window.

You must wait for a few seconds for the menu to appear.

   b In the menu that appears, click *Install Upgrade Images*, and then *Install System Upgrade*.

   In the Job Progress area of the window, progress messages appear in the Task Name and Task Status columns. The icon on the left initially appears yellow. After a few seconds, the icon turns green and the Task Status column shows that the upgrade was successful.

The installation process unpacks the .tar file. The phones will pick up the new software the next time that they register or are rebooted.

Upgrading VCX Server Software from 6.0x to 7.0

This section describes the procedures required to upgrade a system running VCX server software version 6.0x to VCX server software version 7.0.

Sections cover the following configurations and/or components that can be upgraded using EMS:

- Upgrading a Multiple Site Configuration from 6.0.x to 7.0
- Upgrading the VCX IP Telephony Software from 6.0x to 7.0

- Upgrading the IP Messaging Software from 6.0x to 7.0
- Upgrading the SIP Phone Downloader and Boot File Software from 6.0x to 7.0

Upgrading a Multiple Site Configuration from 6.0.x to 7.0

This section describes how to upgrade a VCX configuration from version 6.0x to 7.0 where there is more than one regional office and branch offices present.

These instructions assume a two-region office configuration where the regional offices use global messaging and the branch offices use local messaging configurations. When upgrading a region-to-region office configuration, replication needs to be dropped.

Following this procedure upgrades the VCX system to an operational state and assumes the VCX system was operational prior to the upgrade occurring.

Multiple Site Upgrade Order

When upgrading a multiple site configuration keep this order in mind, which is outlined in more detail in the actual procedure:

- First, upgrade the replicated regional office VCX data servers.
- Second, upgrade the regional office IP Messaging servers.
- Third, upgrade the regional office Call Processing server.
- Fourth, upgrade the branch offices, starting with any that are hosted by the primary regional office.

The software upgrade package is provided by 3Com or your authorized 3Com reseller and must be installed using the following sequence of steps.

1. Untar the upgrade tar file(s) and copy them to the EMS server in the *<EMS_INSTALL_DIR>/software_upgrades/voice/SystemUpgrades* directory. This includes any software for the VCX data server, IP Messaging server, and/or the VCX call processing server.
2. If you have a replicated system, clear any replication errors before performing an upgrade, otherwise, go to step 3.
   a. From the EMS client explorer tree, for each VCX data server you want to drop replication from, click *3Com VCX IP Telephony Server*.

b Right-click *3Com VCX IP Telephony Server*, select *Database Replication*, and then click *Clear Replication Errors*.

You can only delete replication errors on regional offices, not on branch offices.

3 Stop Tomcat on the region 1 and 2 VCX call processing server.

a From the EMS client explorer tree, for the region 1 VCX call processing server, click *3Com VCX IP Telephony Server*.

b Right-click *3Com VCX IP Telephony Server*, select *Web Provisioning*, and then click *Disable Web Provisioning.*

c From the EMS client explorer tree, for the region 2 VCX call processing server, click *3Com VCX IP Telephony Server*.

d Right-click *3Com VCX IP Telephony Server*, select *Web Provisioning*, and then click *Disable Web Provisioning.*

4 Stop replication between the region 1 and 2 VCX data servers.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b Right-click *3Com VCX IP Telephony Server*, select *Database Replication*, and then click *Drop Replication.*

5 Upgrade the region 1 VCX data server.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b From the right-hand of the pane, click the *Planned Upgrades* tab.

For each of these fields, the default setting is *None Planned*.

c Double-click the *Planned System Upgrade* field and click the *vcx-dataserver-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the filename to the database.

Once an upgrade file has been selected, the file must be transferred to the server.

e To transfer the file to the server, from the VCX data server *3Com VCX IP Telephony Server* right-click menu, click *Transfer Upgrade Images* and then click *Transfer System Upgrade File.*

These options are only available is a file has been selected for upgrade. The file is SFTP'd to the server, using the SFTP credentials in the *SSH/SFTP Settings* tab.

Now the upgrade file needs to be installed.

With *IP Telephony upgrades*, this only unpacks the tar file and creates the relevant directories on the server, it does not switch the running version to the new version.

f To install the upgrade file to the server, from the VCX data server *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Install System Upgrade*.

g Verify that the upgrade succeeded. To verify that the upgrade succeeded, the VCX data server *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Verify Upgrade*.

h Switch the software version for the VCX data server. A switchover needs to be performed before the new version takes effect.

i To switchover the VCX data server software, from the data server *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Switchover Version*.

The server reboots and EMS provides status of the switchover progress.

To verify the version numbers of the newly installed software, click the each component from the explorer tree and click the *Identification* tab.

j Click *Refresh all* to confirm that the latest software has been installed.

6 Stop the region 1 VCX data server before upgrading the region 2 VCX data server.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com VCX Data Server.*

c Right-click *3Com VCX Data Server,* select *Maintenance*, and then click *Hard Shutdown.*

7 Stop replication between the region 2 and 1 VCX data servers.

a From the EMS client explorer tree, for the region 2 VCX data server, click *3Com VCX IP Telephony Server*.

b Right-click *3Com VCX IP Telephony Server*, select *Database Replication*, and then click *Drop Replication.*

8 Upgrade the region 2 VCX data server. Repeat step a through step j in step 5 except perform the steps on the region 2 VCX data server.

9 Stop the region 2 VCX data server.

a From the EMS client explorer tree, for the region 2 VCX data server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com VCX Data Server.*

c Right-click *3Com VCX Data Server,* select *Maintenance,* and then click *Hard Shutdown.*

10 Upgrade the region 2 VCX data server database on region 1.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b From the right-hand pane, click the *DB Schema Upgrade* tab.

c From the *Database Schema Site ID* field, enter the Region 2 site ID.

d Click *Save All*.

e Click the *3Com VCX IP Telephony Server* for the region 2 VCX data server.

f Right-click *3Com VCX IP Telephony Server*, and select *Database Upgrade*, and then click *Upgrade Database Schema*.

11 Upgrade the region 1 VCX data server database on region 2.

a From the EMS client explorer tree, for the region 2 VCX data server, click *3Com VCX IP Telephony Server*.

b From the right-hand pane, click the *DB Schema Upgrade* tab.

c From the *Database Schema Site ID* field, enter the Region 1 site ID.

d Click *Save All*.

e Click the *3Com VCX IP Telephony Server* for the region 1 VCX data server.

f Right-click *3Com VCX IP Telephony Server*, and select *Database Upgrade*, and then click *Upgrade Database Schema*.

12 Setup replication for the region 1 VCX data server.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Replication Settings* tab.

c From the *Master Def Site IP Address* field, enter the IP Address of the master definition site (usually the region 1 primary VCX data server).

d From the *Master Site IP Address* field, enter the IP Address of the master site (usually the region 2 primary VCX data server).

e From the *Site ID* field, enter the site ID of the Region 1 VCX data server.

f Click *Save All*.

g Right-click *3Com VCX IP Telephony Server*, select *Database Replication,* and then click *Setup Database Replication.*

13 Setup replication for the region 2 VCX data server.

a From the EMS client explorer tree, for the region 2 VCX data server, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Replication Settings* tab.

c From the *Master Def Site IP Address* field, enter the IP Address of the master definition site (usually the region 2 primary VCX data server).

d From the *Master Site IP Address* field, enter the IP Address of the master site (usually the region 1 primary VCX data server).

e From the *Site ID* field, enter the site ID of the Region 1 VCX data server.

f Click *Save All*.

g Right-click *3Com VCX IP Telephony Server*, select *Database Replication,* and then click *Setup Database Replication.*

14 Start the Region 1 VCX data server. This cannot be done until the replication setup is finished, which takes a minimum of 20 minutes.

To verify if the replication is finished, right-click *3Com VCX IP Telephony Server* of the VCX data server, select *Database Replication*, and then click *Check Database Replication.* Once complete the *Job Status* pane of the EMS client lists `Check Database Replication complete`.

a From the EMS client explorer tree, for the region 1 VCX data server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com VCX Data Server.*

c Right-click *3Com VCX Data Server,* select *Maintenance,* and then click *Hard Restart*.

15 Start the Region 2 VCX data server. This cannot be done until the replication setup is finish, which takes a minimum of 20 minutes.

To verify if the replication is finished, right-click *3Com VCX IP Telephony Server* of the VCX data server, select *Database Replication*, and then click *Check Database Replication.* Once complete the *Job Status* pane of the EMS client lists `Check Database Replication complete`.

a From the EMS client explorer tree, for the region 2 VCX data server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com VCX Data Server.*

c Right-click *3Com VCX Data Server,* select *Maintenance,* and then click *Hard Restart*.

16 Shut down the primary IP Messaging server.

a From the EMS client explorer tree, for the primary IP Messaging server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com IP Messaging System*.

c Right-click *3Com IP Messaging System,* select *Maintenance,* and then click *Graceful Shutdown.*

17 Shut down the secondary IP Messaging server.

a From the EMS client explorer tree, for the secondary IP Messaging server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com IP Messaging System*.

c Right-click *3Com IP Messaging System,* select *Maintenance,* and then click *Graceful Shutdown.*

18 Upgrade the primary IP Messaging server.

a From the EMS client explorer tree, for the primary IP Messaging server, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned IP Messaging Upgrade* field and click the *vcx-ipmsg-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the IP Messaging server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer IPMSG Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the IP Messaging server, for the primary IP Messaging server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install IPMSG Upgrade*.

i To verify the version number of the newly installed software, click the IP Messaging server from the explorer tree and then click the *Identification* tab.

j Click *Refresh all* to confirm that the latest software has been installed.

19 Stop the primary IP Messaging server.

a From the EMS client explorer tree, for the primary IP Messaging server, click *3Com VCX IP Telephony Server.*

b Expand *3Com VCX IP Telephony Server,* and click *3Com IP Messaging System.*

c Right-click *3Com IP Messaging System,* select *Maintenance,* and then click *Graceful Shutdown.*

20 Upgrade the secondary IP Messaging server.

a From the EMS client explorer tree, for the secondary IP Messaging server, click *3Com VCX IP Telephony Server.*

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned IP Messaging Upgrade* field and click the *vcx-ipmsg-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the IP Messaging server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer IPMSG Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the IP Messaging server, for the secondary IP Messaging server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install IPMSG Upgrade*.

i To verify the version number of the newly installed software, click the IP Messaging server from the explorer tree and then click the *Identification* tab.

j Click *Refresh all* to confirm that the latest software has been installed.

21 Restart the primary IP Messaging server.

a From the EMS client explorer tree, for the primary IP Messaging server, click *3Com VCX IP Telephony Server*.

b Expand *3Com VCX IP Telephony Server,* and click *3Com IP Messaging System*.

c Right-click *3Com IP Messaging System,* select *Maintenance,* and then click *Graceful Restart*.

22 Upgrade the primary VCX call processing server.

a From the EMS client explorer tree, for the primary VCX call processing server, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-callserver-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the VCX calling processing server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the VCX calling processing server, for the primary VCX calling processing server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

i To verify the version number of the newly installed software, from the explorer tree, for the primary VCX call processing server, click *3Com VCX IP Telephony Server.*

j In the left hand pane, click the *Identification* tab.

k Click *Refresh all* to confirm that the latest software has been installed.

23 Upgrade the secondary VCX call processing server.

a From the EMS client explorer tree, for the secondary VCX call processing server, click *3Com VCX IP Telephony Server.*

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-callserver-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the VCX calling processing server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the VCX calling processing server, for the secondary VCX calling processing server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

i To verify the version number of the newly installed software, from the explorer tree, for the secondary VCX call processing server, click *3Com VCX IP Telephony Server*.

j In the left hand pane, click the *Identification* tab.

k Click *Refresh all* to confirm that the latest software has been installed.

24 Upgrade the Billing Support server.

a From the EMS client explorer tree, for the server where the billing support server is installed, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-bss-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the billing support server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the billing support server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

25 Upgrade the branch office(s), starting with any that are a part of Region 1.

a Stop Tomcat on the host VCX call processing server.

b From the EMS client explorer tree, for the host VCX call processing server, click *3Com VCX IP Telephony Server*.

c Right-click *3Com VCX IP Telephony Server*, select *Web Provisioning*, and then click *Disable Web Provisioning.*

- To upgrade an *IP Telephony Server* branch office go to step 26 on page 116.

- To upgrade an *IP Telephony Server and IP Messaging Server* branch office go to step 27 on page 116.

26 Upgrade an IP Telephony Server branch office.

a From the EMS client explorer tree, for the branch office, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-softswitch<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the branch office server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the branch office server, for the branch office server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

i To verify the version number of the newly installed software, from the explorer tree, for the branch office server, click *3Com VCX IP Telephony Server*.

j In the left hand pane, click the *Identification* tab.

k Click *Refresh all* to confirm that the latest software has been installed.

If you have another branch office to upgrade in this region, go to step 25 on page 115.

If this is the last branch office to upgrade for this region, go to step 28 on page 117.

27 Upgrade an IP Telephony Server and IP Messaging branch office.

a From the EMS client explorer tree, for the branch office, click *3Com VCX IP Telephony Server*.

b In the right-hand pane, click the *Planned Upgrades* tab.

c Double-click the *Planned System Upgrade* field and click the *vcx-all-<version>.tar* file from the drop-down menu.

d Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the branch office server.

e To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images,* and then click *Transfer System Upgrade File*.

f These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

g To install the upgrade file on the branch office server, for the branch office server, click *3Com VCX IP Telephony Server.*

h Right-click the *3Com VCX IP Telephony Server*, select *Install Upgrade Images,* and then click *Install System Upgrade*.

i To verify the version number of the newly installed software, from the explorer tree, for the branch office server, click *3Com VCX IP Telephony Server.*

j In the left hand pane, click the *Identification* tab.

k Click *Refresh all* to confirm that the latest software has been installed.

If you have another branch office to upgrade in this region, go to step 25 on page 115.

If this is the last branch office to upgrade for this region, go to step 28 on page 117.

28 Restart Tomcat on the host regional office VCX call processing server.

a From the EMS client explorer tree, for the host VCX call processing server, click *3Com VCX IP Telephony Server.*

b Right-click *3Com VCX IP Telephony Server*, select *Web Provisioning*, and then click *Enable Web Provisioning.*

If you have another branch office to upgrade in a different region, go to step 25 on page 115.

If you have no more branch offices to upgrade, the upgrade is complete.

Upgrading the VCX IP Telephony Software from 6.0x to 7.0

EMS provides support for remote software upgrades of VCX IP Telephony software, from version 6.0x to 7.0.

EMS does not allow individual component upgrades without first installing a new version for switchover. However, individual component upgrades can be performed without first installing a new version for switchover through the CLI interface.

The software upgrade package is provided by 3Com or your authorized 3Com reseller and must be installed using the following sequence of steps.

1. The software (relevant tar files) to be upgraded MUST be located in the *<EMS_INSTALL_DIR>/software_upgrades/voice/SystemUpgrades* directory on the EMS server.
2. Once the tar file is in the correct directory, from the EMS client explorer tree, click *3Com VCX IP Telephony Server*.
3. From the right-hand of the pane, click the *Planned Upgrades* tab.

   For each of these fields, the default setting is *None Planned*.
4. Double-click the *Planned System Upgrade* field to choose the upgrade file.
5. Click *Save all* to commit the filename to the database.

   Once an upgrade file has been selected, the file must be transferred to the server.
6. To transfer the file to the server, from the *3Com VCX IP Telephony Server* right-click menu, click *Transfer Upgrade Images* and then click *Transfer System Upgrade File*.

   These options are only available is a file has been selected for upgrade. The file is SFTP'd to the server, using the SFTP credentials in the *SSH/SFTP Settings* tab.

   Now the upgrade file needs to be installed.

With *IP Telephony upgrades*, this only unpacks the tar file and creates the relevant directories on the server, it does not switch the running version to the new version.

7 To install the upgrade file to the server, from the *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Install System Upgrade.*

8 Verify that the upgrade succeeded. To verify that the upgrade succeeded, the *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Verify Upgrade*.

9 Switch the software version for the VCX system software. A switchover needs to be performed before the new version will take effect.

10 To switchover the VCX system software, from the *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Switchover Version*.

The server reboots and EMS provides status of the switchover progress.

11 To verify the version numbers of the newly installed software, click the each component from the explorer tree and click the *Identification* tab.

12 Click *Refresh all* to confirm that the latest software has been installed.

Uploading Music on Hold Files

This section provides information on how to remotely upload Music on Hold files using EMS.

The following sequence of steps must be followed in order to upload and activate a Music on Hold file for a IP Telephony server with IP Messaging present:

1 Copy the Music on Hold files that you want to upload to in the *<EMS_INSTALL_DIR>/software_upgrades/voice/MusicOnHoldFiles* directory.

2 From the EMS client, go to the *3Com VCX IP Telephony Server* level within the Equipment folder.

3 In the right-hand pane, click the *Planned Upgrades* tab.

4 In the *Planned Music on Hold Upgrades* field, click the correct file from the drop-down list. The file you copied in step 1 is listed in the drop-down menu.

Once the file has been selected, you must upload it to the system. Selecting a file enables the *Transfer Music on Hold File* option in the *Transfer Upgrade Images* right-click menu.

5 Click *Save all*.

6 From the *3Com VCX IP Telephony Server* right-click menu, click *Transfer Upgrade Images* and then *Transfer Music on Hold.*

The Music on Hold file is transferred, using SFTP, to the server, using the SFTP credentials in the *SSH/SFTP Settings* tab.

The file that is uploaded needs to be associated with a Music on Hold number.

7 Go to the *3Com IP Messaging System* level from the explorer tree.

8 From the right-hand pane, click the *Music on Hold* tab.

9 From the *Music on Hold Number* field, set the Music on Hold number.

The filename is set automatically when a file is uploaded. However, a user may change the filename if needed (the new filename must be that of a file that has been uploaded to the system).

10 Activate the Music on Hold file, by right-clicking on the *3Com IP Messaging System level.*

11 Click *Music on Hold* and then *Activate Music on Hold File*.

Upgrading the IP Messaging Software from 6.0x to 7.0

EMS provides support for remote software upgrades of the IP Messaging software, from version 6.0x to 7.0.

The software upgrade package is provided by 3Com or your authorized 3Com reseller and must be installed using the following sequence of steps.

1 The upgrade software (relevant tar file) MUST be located in the *<EMS_INSTALL_DIR>/software_upgrades/voice/IPMessagingUpgrades* directory on the EMS server.

2 Once the tar file is in the correct directory, from the EMS client explorer tree, click *3Com VCX IP Telephony Server.*

3 In the right-hand pane, click the *Planned Upgrades* tab.

4 Double-click the *Planned IP Messaging Upgrade* field.

5 Click *Save all* to commit the tar file to the database.

Once an upgrade tar file has been selected, the tar file must be transferred to the IP Messaging server.

6 To transfer the tar file to the server, from the *3Com VCX IP Telephony Server* right-click menu, select *Transfer Upgrade Images* and then click *Transfer IPMSG Upgrade File*.

These options are only available if a file has been selected for upgrade. The file is transferred to the server using the SFTP credentials in the *SSH/SFTP Settings* tab.

Next the upgrade tar file needs to be installed, which is the last step before the new version becomes active.

7 To install the upgrade file on the IP Messaging server, from the *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click *Install IPMSG Upgrade*.

8 To verify the version number of the newly installed software, click the IP Messaging server from the explorer tree and then click the *Identification* tab.

9 Click *Refresh all* to confirm that the latest software has been installed.

Upgrading the SIP Phone Downloader and Boot File Software from 6.0x to 7.0

EMS provides support for remote software upgrades of the 3Com phone software, from version 6.0x to 7.0.

The software upgrade packages are provided by 3Com or your authorized 3Com reseller and must be installed using the following sequence of steps.

1 The software to be upgraded MUST be located in the following places on the EMS server. The relevant tar files from the release must be placed into the following EMS directories:

- **Application Downloader software** – place the tar file in the *<EMS_INSTALL_DIR>/software_upgrades/voice/PhoneAppUpgrades* directory.
- **Boot software** – place the tar file in the *<EMS_INSTALL_DIR>/software_upgrades/voice/PhoneBootUpgrades* directory.

2 Once the tar file is in the correct directory, from the EMS client explorer tree, click *3Com VCX IP Telephony Server.*

3 From the right-hand of the pane, click the *Planned Upgrades* tab.

For each of these fields, the default setting is *None Planned*.

4 Double-click the correct field to choose the upgrade file.

- **Application Downloader software** – double-click the *Planned Phone App Upgrade* field.
- **Boot software** – double-click the *Planned Phone Boot Upgrade* field.

5 Click *Save all* to commit the filename to the database.

Once an upgrade file has been selected, the file must be transferred to the server.

6 To transfer the file to the server, from the *3Com VCX IP Telephony Server* right-click menu, click *Transfer Upgrade Images* and then click one of the following depending on the type of upgrade being performed:

- **Application Downloader software** – click *Transfer PhoneApp Upgrade File*.
- **Boot software** – click *Transfer PhoneBoot Upgrade File*.

  These options are only available is a file has been selected for upgrade. The file is SFTP'd to the server, using the SFTP credentials in the *SSH/SFTP Settings* tab.

Now the upgrade file needs to be installed, which is the last step before the new version become active.

7 To install the upgrade file to the server, from the *3Com VCX IP Telephony Server* right-click menu, click *Install Upgrade Images* and then click one of the following depending on the type of upgrade being performed:

- **Application Downloader software** – click *Install Phone App Upgrade*.
- **Boot software** – click *Install Phone Boot Upgrade*.

  All of the upgrade is complete

8 To verify the version numbers of the newly installed software, click the each component from the explorer tree and click the *Identification* tab.

9 Click *Refresh all* to confirm that the latest software has been installed.

10 USING QOS MONITORING

This chapter describes how to use the QoS Monitoring feature to gather and view statistics on 3Com IP phones.

QoS Monitoring is implemented across three components in a VCX system:

- VCX Call Processor
- 3Com IP Phones
- XML Accounting Server

Overview

The QoS Monitoring feature covers 3Com IP phones as endpoints (310x). With QoS Monitoring you can:

- Obtain measurements of layer-2 configuration changes
- Identify faulty phones or routes
- Recognize periods or network episodes with sub-standard voice quality
- View generated statistics using SNMP

Additionally, you can configure:

- One or more monitored phones/subnets
- Thresholds for QoS statistics generation by the phones on those monitored subnets
- Alarm thresholds for notifications to be issued based on QoS parameters

Third party phones, soft phones, and convergence clients are not supported.

VCX Call Processor

The VCX Call Processor is where you set the default threshold values for the statistics you want to gather and where you specify the 3Com IP phones (endpoints) that you want to monitor.

The monitoring parameters and phones specified for monitoring are persistent across system reboots and upgrades.

Setting QoS Monitoring Parameters

Use the *QoS Monitoring Configuration* tab to set the default threshold values for the following statistics:

- Computed Mean Opinion Score (MOS) average
- Jitter average
- Packet Loss average
- Round Trip Delay average

The thresholds configured here automatically become the defaults for any endpoints or subnets you add for monitoring. These settings can be overridden on a phone or subnet basis by editing the appropriate column in the QoS Monitored Endpoints table.

To set QoS Monitoring parameters:

1. From the EMS client *Explorer* tree, select the *3Com VCX Call Processor*.
2. From the Properties tab, click the *QOS Monitor Configuration* tab.
3. Enter threshold values for each statistic.

   Monitored phones send QoS reports to the Call Processor when any threshold is breached.

Specifying Phones for QoS Monitoring

Use the *QoS Monitored Endpoints* tab to specify which phones or set of phones report QoS statistics to the Call Processor.

The Call Processor only processes statistics from phones that are specified for monitoring. If monitored phones are setup on the primary and secondary Call Processor, only the Call Processor that the phone is currently specified to will receive the QoS reports from the phones.

To specify phones for QoS Monitoring:

1. From the EMS client *Explorer* tree, select the *3Com VCX Call Processor*.
2. From the Properties tab, click the *QOS Monitored Endpoints* tab.

3 Click the *Add* button.

4 Enter the IP address for the phone you want to monitor.

To specify multiple phones at once, enter the IP address and netmask for the set of phones you want to monitor.

5 Click *OK*.

The phone or set of phones is added to the QOS Monitored Endpoints page.

The default settings are set automatically when a new entry is created. Click on an individual setting to change it.

6 Repeat steps 3 - 5 to specify additional phones.

3Com IP Phones

The statistics being recorded at the end of every call for each monitored 3Com IP phone are:

- SIP Call ID
- Codec Sample Size
- Codec Type
- Device Type
- Computed Mean Opinion Score
- Jitter
- Packet Loss
- Round Trip Delay
- Call Start Time
- Call End Time
- Caller Extension and IP address
- Called Party Extension and IP address

Configuring 3Com IP Phones

No configuration is necessary on individual 3Com IP phones. The settings configured in the previous sections, Setting QoS Monitoring Parameters and Specifying Phones for QoS Monitoring, are relayed to the phones automatically and generate statistics based on the thresholds configured.

XML Accounting Server

The XML Accounting Server collects, and is where you view, the QoS reports generated by the VCX Call Processor.

On the XML Accounting Server you can:

- Set QoS collection parameters, which determine when the system issues *Warning* or *Critical* severity traps based on QoS measurements
- View call history
- View phone statistics
- View Quality Detail Reports (QDRs)

Settings QoS Collection Parameters

Use the *QoS Collection Parameters* tab to specify when the Accounting Server issues *Warning* or *Critical* severity traps based on QoS measurements.

To set QoS Collection parameters:

1. From the EMS client *Explorer* tree, select the accounting server.
2. From the Properties tab, click the *QOS Collection Parameters* tab.
3. Specify a threshold value for each attribute.

   For a description of each attribute, see Table 36. For complete details of each attribute, view the context-sensitive help in EMS.

Table 36 QOS Collection Parameters Tab

Attribute	Description
BucketSizeMultiplier	Determines the size of the rate-limit bucket. The rate-limit bucket is multiplied by either of the vcxQoSRateLimitMaxWarnings or vcxQoSRateLimitMaxAlarms to produce a rate-limit bucket value.
Computed MOSValueSevereAlarm Threshold	Specifies a threshold for QoS alarms based on computed mean option scores (MOS). A value of zero disables this threshold.
ComputedMOSValue WarningThreshold	Specifies a threshold for QoS warnings based on computed mean opinion scores (MOS). A value of zero disables this threshold.
EndpointCallHistory Depth	Specifies the number of most recent calls to use to compute the running-average for QoS performance metrics. The running-averages are made available in the augmenting table vcxMonitoredEndpointStatisticsTable. A value of zero disables running average statistics for the given row.

(continued)

Table 36 QOS Collection Parameters Tab (continued)

Attribute	Description
JitterValueSevereAlarm Threshold	Specifies a threshold for QoS alarms based on measured jitter.
JitterValueWarning Threshold	Specifies a threshold for QoS warnings based on measured jitter.
LogAlarms	Enable or disable the logging of QoS alarm conditions to the system's logging device.
LogWarnings	Enable or disable the logging of QoS warning conditions to the system's logging device.
PacketLossValueSevere AlarmThreshold	Specifies a threshold for QoS alarms based on measured packet loss. A value of zero disables this threshold.
PacketLossValueWarning Threshold	Specifies a threshold for QoS warnings based on measured packet loss. A value of zero disables this threshold.
RateLimitMaxAlarms	Specifies the maximum number of QoS alarms that can be issued on average in the rate-limit period.
RateLimitMaxWarnings	Specifies the maximum number of QoS warnings that can be issued on average in the rate-limit period.
RateLimitPeriod	Specifies a rate-limit period in minutes. This object is closely coupled with vcxQoSRateLimitMaxWarnings and vcxQoSRateLimitMaxAlarms. Together, they are used to implement a leaky-bucket algorithm.
RoundTripDelayValue SevereAlarmThreshold	Specifies a threshold value for QoS alarms based on measured round-trip delay. A value of zero disables this threshold.
RoundTripDelayValue WarningThreshold	Specifies a threshold for QoS warnings based on measured round-trip delay. A value of zero disables this threshold.

4 Click *OK*.

Viewing Call History

Use the *Endpoint Call History* tab to view the history of phone calls associated with each monitored 3Com IP phone.

The call history information that is sent to the XML Accounting Server does not persist across reboots of the system, upgrades, or restarts of the Accounting Server. However, the QoS data is not lost. The data is available in the Quality Detail Records (QDR) stored on the Accounting Server. See Viewing Quality Detail Records (QDRs).

To view call history:

1. From the EMS client *Explorer* tree, select the accounting server.
2. From the Properties tab, click the *Endpoint Call History* tab.

   The Endpoint Call History table appears. For a description of each attribute, view the context-sensitive help available for each attribute in EMS.

Viewing Phone Statistics

Use the *Endpoint QoS Statistics* tab to view the aggregate statistics you selected on the VCX Call Processor.

The phone statistics that are sent to the XML Accounting Server do not persist across reboots of the system, upgrades, or restarts of the Accounting Server. However, the QoS data is not lost. The data is available in the Quality Detail Records (QDR) stored on the Accounting Server. See Viewing Quality Detail Records (QDRs).

To view phone statistics:

1. From the EMS client *Explorer* tree, select the accounting server.
2. From the Properties tab, click the *Endpoint QoS Statistics* tab.

   The Endpoint QoS Statistics table appears. For a description of each attribute, view the context-sensitive help available for each attribute in EMS.

Viewing Quality Detail Records (QDRs)

QoS statistics generate Quality Detail Records (QDRs), in XML format, that are stored on the Accounting Server. These QDRs can be downloaded and used to create reports.

11 MANAGING MEDIA GATEWAYS

This chapter describes the media gateways supported by VCX 7.0 and later, and explains how to back up, restore, and upgrade a gateway.

Supported Media Gateways

The following media gateways are supported by VCX 7.0 and later:

- V6100 Digital Media Gateway
- VCX V7111 Analog Media Gateway
- VCX V7122 Digital Media Gateway
- VCX V6000 Integrated Branch Office Solution

Backing Up and Restoring Media Gateways

EMS allows you to save the configurations for a media gateway and create a backup configuration file. Use the backup file to restore the gateway to a previous set of configurations.

Creating a Backup File

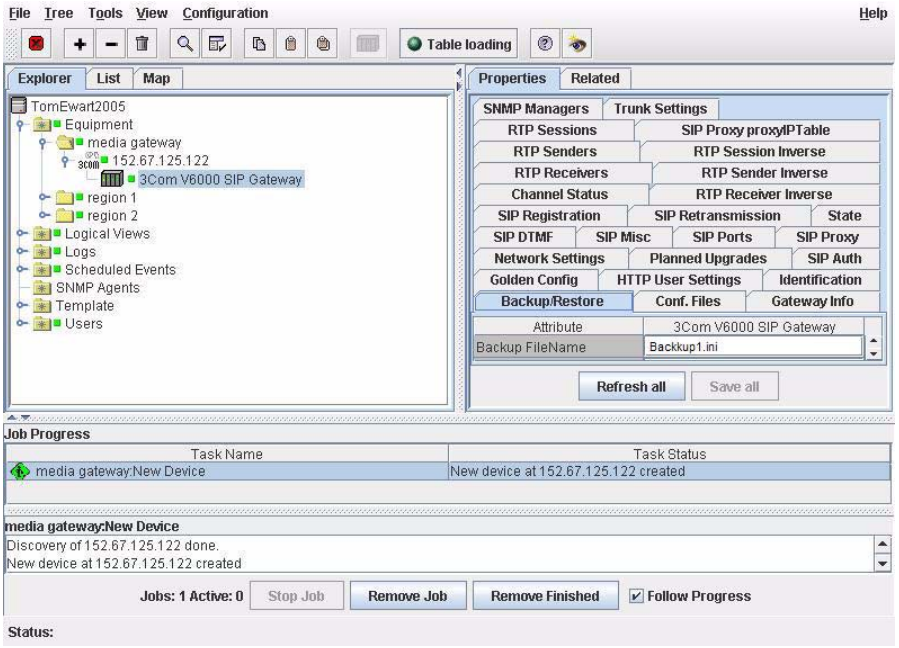
To create a backup file:

1. From the EMS client *Explorer* tab, right-click the media gateway.
2. From the right-hand pane, click the *Backup/Restore* tab.
3. Enter a name for the backup file in the *Backup File Name* field.

   This will become the filename on the EMS server that will contain the backup contents. For example, create a file titled *backup1.ini*.

   The following figure shows the Backup/Restore tab and Backup File Name field.

Figure 4 Backup/Restore Tab



4 Click *Save All*.

5 From the *Explorer* tab, right-click the media gateway.

6 From the pop-up menu, select *Backup*.

A backup file with the name selected in step 3 is created on the EMS server.

Performing a Restore

CAUTION: *Performing a restore reboots the gateway, and therefore disrupts service on the gateway. Perform a restore in a service window only.*

To perform a restore:

1 From the EMS client *Explorer* tree, right-click the media gateway.

2 From the right-hand pane, click the *Backup/Restore* tab.

3 Select the backup file you want to use when performing the restore.

4 Right-click the backup file and select *Restore*.

Upgrading Software

This section describes how to upgrade software files on a media gateway.

The software upgrade files are provided by 3Com or your authorized 3Com reseller and must be installed using the following sequence of steps.

CAUTION: *Upgrading software files on a gateway may cause the gateway to reboot. Perform an upgrade in a service window only.*

1 The software to be upgraded MUST be located in the *<EMS_INSTALL_DIR>/software_upgrades/voice/GatewayUpgrades* directory on the EMS server.

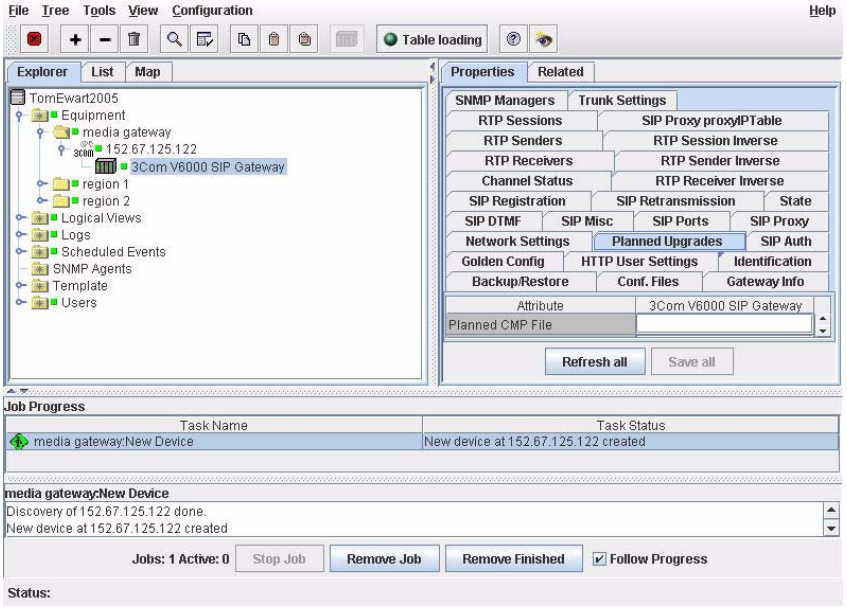
There are several types of software upgrade files. Each upgrade file must be placed in the above directory on the EMS server.

2 Once the upgrade file is in the correct directory, from the *Explorer* tab, right-click on the media gateway.

3 From the right-hand pane, click the *Planned Upgrades* tab.

A field appears for each software upgrade file you have copied to the *GatewayUpgrades* directory. The following figure shows the Planned Upgrades tab with a field for upgrading a CMP file.

Figure 5 Planned Upgrades Tab



4. Double-click a field to choose the upgrade file.

   The drop-down list in each field displays all of the installed software upgrade files on the server. There are several types of upgrade files:

   - CMP files—actual system upgrades of software versions for the gateway.
   - CPT files—call progress tones.
   - FXO and FXS files—Foreign Exchange Office; Foreign Exchange Station.
   - VP files—voice profiles.

5. Click *Save all*.

6. From the *Explorer* tab, right-click on the media gateway and select the appropriate type of upgrade from the pop-up menu.

   Only those upgrade types that have been chosen in step 4 will be enabled for selection.

INDEX

Numerics

3Q
    refer to 3Queue
3Queue
    protocol configuration 38, 46

A

Accounting Server
    Activity, Monitoring 29
    Rediscovering 29
Activity, Monitoring Accounting Server 29
authentication server
    reserving in EMS 30
    unreserving in EMS 30

B

back-end server
    common configuration 39, 47
    common statistics 39, 47
    enabling traps 77
baseline, setting the saved configuration as 19
BES
    common configuration 35
BootFilename 73
BootVersion 73

C

common configuration, BES 35
common statistics
    back-end server 39, 47
configuration
    3Queue protocol 38, 46
    back-end server 39, 47
    back-end server common 39, 47
    BES common 35
    common back-end server 39, 47
    EMS tabs 38, 46
    Solaris server, restoring 20, 21
    Solaris server, saving 19
    trap destinations in EMS 77
contact
    3Com with documentation comments 14
conventions
    notice icons, About This Guide 12
    text, About This Guide 12

D

documentation
    related 13

E

EMS
    configuring trap destinations 77
    reserving authentication server 30
    unreserving authentication server 30
    updating the server state 30
enabling
    back-end server traps 77

G

gateways, media
    creating backup file 129
    performing a restore 130
    supported 129
    upgrading software 131

I

identification 40, 48
ImageFilename 73

L

license components
    viewing 17, 18, 126
license file
    activating 16
    installing 15, 16
    viewing details 17
LocalDeviceNameAdmin 72
LocalIPAddressAdmin 72
LocalIPPortAdmin 72

M

media gateways
    creating backup file 129
    performing a restore 130
    supported 129
    upgrading software 131

Monitoring Accounting Server Activity 29

P

procedures 105
protocol
  3Queue configuration 38, 46
protocol configuration
  3Queue 38, 46

Q

QoS monitoring
  configuring 3Com IP phones 125
  configuring Accounting server 126
  configuring Call Processor 124
  overview 123

R

receiving
  traps 78
Rediscovering, Accounting Server 29
removing unused versions of VCX 86
reserving
  authentication server in EMS 30
restoring, Solaris server configuration 20, 21

S

saving, Solaris server configuration 19
scrips, SSH
  managing 32
setting
  saved configuration as baseline 19
Solaris server
  configuration
    restoring 20, 21
    saving 19
SSH scripts
  managing 32
state 40, 49
statistics, back-end server common 39, 47
Supported 129
system information, viewing 18

T

tabs
  EMS configuration 38, 46
traps
  configuring destinations in EMS 77
  enabling in EMS 77
  enabling in EMS for back-end server 77
  receiving 78

U

unreserving
  authentication server in EMS 30
  using EMS 30
updating
  server state in EMS 30
upgrading
  7.0 to 7.1 IP Messaging software 102
  7.0 to 7.1 IP Telephony software 101
  7.0 to 7.1 multiple site configuration 88
  7.0 to 7.1 phone-only software 103
  from 6.0.x to 7.0 88, 106
    IP Telephony software 118
  from 6.0x to 7.0
    IP Messaging software 120
    multiple site configuration 106
    multiple site order 106
    SIP phone downloader 121
  from 7.0 to 7.1 87
    IP Messaging software 102
    IP Telephony software 101
    multiple site order 88
upgrading from 7.1x to 7.1y 87
users
  intended 11

V

versions of VCX
  removing 86
  viewing 86